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DIVISION OF THE
STATE GEOLOGICAL SURVEY
M. M. LEIGHTON, *Chief*
URBANA

REPORT OF INVESTIGATIONS—NO. 140

ILLINOIS MINERAL INDUSTRY IN 1947

BY

WALTER H. VOSKUIL



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URBANA, ILLINOIS

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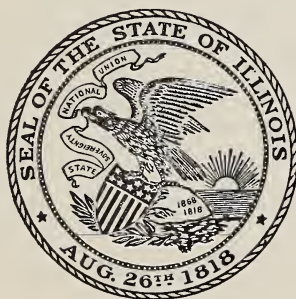
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Topographic Mapping in Cooperation with the United States Geological Survey.

This report is a contribution of the Mineral Economics Section.

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November 1, 1948

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ILLINOIS MINERAL INDUSTRY IN 1947

BY

WALTER H. VOSKUIL

INTRODUCTION

ILLINOIS' PLACE of distinction in industrial activity in the Upper Mississippi Valley and the Nation rests in no small part upon its mineral industry. The primary materials of industrial production—fuels and iron ore, the latter from the Lake Superior district—are available in abundant quantities and are assembled for processing at a low cost on Lake Michigan near the large market of Chicago and of smaller cities in the industrial belt. There are abundant cheaply mined and good quality coals at points accessible to manufacturing centers. In addition to this, certain minerals essential to the processing of primary steel, such as refractory materials and fluxes, are also present in the area, together with a variety of mineral products for foundry, chemical, construction, and other uses.

This wide array of manufacturing industries lies in the center of one of the most efficient and low-cost food producing areas in the United States, if not in the world. A fertile soil has provided an area of high food yields, a mechanized agriculture has brought production costs down to a low level, a flat topography has aided in the introduction of cost-saving farm machinery and the low cost of transporting farm products to consuming centers, and the use of power on farms, by displacing animal power, has added millions of acres to the farm land available for the production of food.

The unusual and excellent endowment of industrial, mineral, and agricultural resources offers opportunities for production and employment that are probably unmatched elsewhere.

The wide variety of mineral production in the State and the high rank of Illinois among the states in the production of several of these minerals, as shown in table 1,

indicates the State's important position as a mineral producer.

Not only is Illinois an important producer of minerals, but it also ranks high as a center for the processing of mineral raw materials from the raw condition into primary raw materials for the use of industry. This is shown in tables 1 and 2 and figure 1.

ACKNOWLEDGMENTS

This report is made possible through the cooperation of the Bureau of Mines of the United States Department of the Interior, the Illinois State Department of Mines and Minerals, and the cooperation of mineral producers throughout Illinois in furnishing information regarding their operation.

Special acknowledgment is made to Miss Ethel M. King who has assembled the statistics for the report on stone, sand, gravel, clay and clay products, silica and tripoli, and the metals; to Mrs. Nina T. Hamrick for the preparation of the section on fluor-spar; and to W. L. Busch for aid in preparation of the sections on coal, coke, petroleum, natural gas, zinc and lead.

Each section of this report was prepared in close collaboration with the heads of the several mineral research divisions of the Illinois State Geological Survey. Special assistance and advice were contributed by Ralph E. Grim, Petrographer and Head of the Division of Clay Resources and Clay Mineral Technology; G. H. Cady, Senior Geologist and Head of the Coal Division; A. H. Bell, Geologist and Head of the Oil and Gas Division; J. E. Lamar, Geologist and Head, and Robert M. Grogan, Associate Geologist, both of the Industrial Minerals Division; F. H. Reed, Chief Chemist and Head, and G. C. Finger, Chemist and Head of the Fluorspar Division, both of the Geochemistry section.

TABLE 1.—SUMMARY OF MINERAL PRODUCTION OF

| Line No. | Material | Detail table | Unit | 1945 | | | | |
|----------|-------------------------------------------------------------------------|--------------|-----------|--------------|-----------------|---------|-------------------|-------|
| | | | | Quantity | Value at plants | | Rank among states | |
| | | | | | Total | Av. | Amt. | Value |
| 1 | <i>Coal—bituminous</i> | 4 | Tons | *73,447,000 | \$171,866,000 | \$ 2.34 | 3 | 4 |
| | <i>Petroleum</i> | | | | | | | |
| 2 | Crude oil..... | 27 | Bbls. | 75,094,000 | 105,130,000 | 1.40 | 6 | 6 |
| 3 | Natural gas—marketed..... | — | M cu.ft. | 16,663,000 | 1,016,000 | .061 | *15 | 15 |
| 4 | Natural gas—used in fields.. | — | M cu.ft. | 15,544,000 | 838,000 | .054 | | |
| 5 | Natural gasoline..... | — | Gals. | *55,023,000 | *3,560,000 | *.065 | *7 | *6 |
| 6 | Liquefied petroleum gases... | — | " | *120,969,000 | *4,074,000 | *.034 | *4 | *4 |
| 7 | | | | — | *114,618,000 | — | | |
| | <i>Stone, rock products</i> | | | | | | | |
| 8 | Limestone, dolomite, marl... | 39, 40 | Tons | 11,122,679 | 11,340,341 | 1.02 | 4 | 3 |
| 9 | Cement..... | 43 | Bbls. | *4,509,932 | *7,654,876 | *1.70 | *e10 | *e9 |
| 10 | Lime..... | 44 | Tons | 287,607 | 2,228,909 | 7.75 | 6 | 5 |
| 11 | Ganister, sandstone..... | 45 | " | 8,573 | 10,791 | 1.26 | | |
| 12 | | | | — | *21,234,917 | — | | |
| | <i>Clays, clay products</i> | | | | | | | |
| 13 | Clays (except fuller's earth).. | 46 | Tons | 169,429 | 510,979 | 3.02 | *7 | *8 |
| 14 | Fuller's earth..... | 46 | " | 43,664 | 403,085 | 9.23 | *4 | 4 |
| 15 | Clay products—refractories.. | 47 | " | 227,755 | 4,170,977 | 18.31 | | |
| 16 | Structural..... | 47 | Eqv. tons | 1,123,775 | 7,486,053 | 6.66 | | *3 |
| 17 | Whiteware and pottery..... | 47 | — | — | 6,920,883 | — | | |
| 18 | | | | — | 19,491,977 | — | | |
| | <i>Sand and Gravel</i> | | | | | | | |
| 19 | Silica sand..... | 48 | Tons | 2,576,460 | 3,723,731 | 1.45 | 1 | 1 |
| 20 | Other sand..... | 49 | " | 3,306,383 | 1,708,718 | .49 | | |
| 21 | Gravel..... | 49 | " | 6,093,060 | 2,975,805 | .49 | | |
| 22 | | | " | 11,975,903 | 8,408,254 | .70 | 2 | 2 |
| | <i>Silica and tripoli</i> | | | | | | | |
| 23 | Ground silica..... | 50 | Tons | 140,376 | 935,389 | 6.66 | 1 | 1 |
| 24 | Tripoli ("amorphous" silica) | 51 | " | 11,144 | 184,189 | 16.53 | 1 | 1 |
| 25 | | | " | 151,520 | 1,119,578 | 7.45 | 1 | 1 |
| 26 | <i>Fluorspar</i> | 52 | Tons | 147,251 | 5,014,807 | 34.06 | 1 | 1 |
| | <i>Metals</i> | | | | | | | |
| 27 | Zinc..... | 64 | Tons | 8,310 | 1,911,300 | 230.00 | 18 | 18 |
| 28 | Lead..... | 64 | " | 3,005 | 516,860 | 172.00 | 14 | 14 |
| 29 | Silver..... | 64 | Troy ozs. | 2,198 | 1,563 | 0.711 | 20 | 20 |
| 30 | | | | — | 2,429,723 | — | | |
| 31 | <i>Miscellaneous minerals</i> | 65 | Tons | 17,846 | 83,814 | 4.70 | | |
| 32 | <i>Annual mineral production</i> | | | — | *344,267,070 | — | | 5 |
| | <i>Minerals processed, but mostly not mined in Illinois^f</i> | | | | | | | |
| 33 | Coke and byproducts..... | 20, 66 | — | — | 44,642,444 | — | 6 | 6 |
| 34 | Packaged fuel..... | — | Tons | 16,690 | 186,593 | 11.20 | | |
| 35 | Pig iron..... | 66 | " | 5,061,368 | 116,303,897 | 22.98 | 4 | 4 |
| 36 | Sulfuric acid..... | 66 | " | 216,482 | 2,186,468 | 10.10 | 2 | 2 |
| 37 | Slab zinc (out-of-state ore).. | 66 | " | 116,669 | 26,833,850 | 230.00 | *3 | *3 |
| 38 | Miscellaneous minerals processed..... | 66 | — | — | 3,505,218 | — | | |
| 39 | <i>Total minerals processed</i> | | | — | 193,658,470 | — | | |
| 40 | <i>Total minerals produced and processed</i> | | | — | *\$537,925,540 | — | | |

* Revised figures.

^a Compiled from various sources, as stated in each table. See footnotes for each table.^b Not available.^c Estimated.^d Subject to revision.

ILLINOIS, SOLD OR USED BY PRODUCERS, 1945-1947^a

| 1946* | | | | | 1947 | | | | | | | Line No. |
|-------------|----------------------------|---------|-------------------|-----------------|--------------------------|----------------------------|---------|------------------------------------|-----------------------------------|--------------------------------|-------|----------|
| Quantity | Value at plants | | Rank among states | | Quantity | Value at plants | | Percent change in amount from 1946 | Percent change in value from 1946 | Rank ^b among states | | |
| | Total | Av. | Amt. | Value | | Total | Av. | | | Amt. | Value | |
| 63,767,000 | \$166,432,000 | \$ 2.61 | 4 | 4 | 68,325,000 | \$214,541,000 | \$ 3.14 | + 7.1 | +28.9 | | | 1 |
| 75,297,000 | 119,420,000 | 1.59 | 6 | 6 | 66,459,000 | 139,785,500 | 2.10 | -11.7 | +17.1 | | | 2 |
| (b) | (b) | — | | | (b) | (b) | — | | | | | 3 |
| (b) | (b) | — | | | (b) | (b) | — | | | | | 4 |
| 53,612,000 | 2,895,000 | .054 | 7 | 6 | ^c 47,455,000 | ^c 2,562,570 | .054 | -11.5 | -11.5 | | | 5 |
| 108,334,000 | 3,358,000 | .031 | 5 | 4 | ^e 115,468,000 | ^e 3,925,912 | .034 | + 6.6 | +16.9 | | | 6 |
| — | ^d 125,673,000 | — | | | — | ^d 146,273,982 | — | — | +16.4 | | | 7 |
| 16,199,882 | 17,512,579 | 1.08 | 3 | 3 | 14,686,832 | 17,164,185 | 1.17 | - 9.3 | - 2.0 | | | 8 |
| 7,069,779 | 12,421,968 | 1.76 | ^e 10 | ^e 10 | 7,515,955 | 14,164,976 | 1.88 | + 6.3 | +14.0 | | | 9 |
| 280,051 | 2,365,455 | 8.45 | 6 | 5 | 223,816 | 1,961,437 | 8.76 | -20.1 | -17.1 | | | 10 |
| 8,336 | 10,900 | 1.30 | | | 16,299 | 18,757 | 1.15 | +95.5 | +72.1 | | | 11 |
| — | 32,310,902 | — | | | — | 33,309,355 | — | — | + 3.1 | | | 12 |
| 173,172 | 583,209 | 3.37 | 7 | 7 | 201,025 | 613,265 | 3.05 | +16.1 | + 5.2 | | | 13 |
| 33,134 | 296,637 | 8.95 | 4 | 4 | 37,740 | 388,955 | 10.31 | +13.9 | +31.1 | | | 14 |
| 208,802 | 5,170,788 | 24.81 | | | 253,408 | 7,074,774 | 27.92 | +21.4 | +36.8 | | | 15 |
| 1,752,428 | 14,752,254 | 8.42 | | 3 | 1,475,779 | 12,806,298 | 8.68 | -15.8 | -13.2 | | | 16 |
| — | 12,274,324 | — | | | — | 12,859,663 | — | — | + 4.8 | | | 17 |
| — | 33,077,212 | — | | | — | 33,742,955 | — | — | + 2.0 | | | 18 |
| 2,256,503 | 3,407,547 | 1.51 | 1 | 1 | 2,533,773 | 4,351,243 | 1.72 | +12.3 | +27.7 | | | 19 |
| 4,830,604 | 2,851,548 | .59 | | | 4,536,916 | 3,110,796 | .69 | - 6.1 | + 9.1 | | | 20 |
| 10,259,669 | 5,809,757 | .57 | | | 8,435,519 | 4,917,967 | .58 | -17.8 | -15.3 | | | 21 |
| 17,346,776 | 12,068,852 | .70 | 2 | 2 | 15,506,208 | 12,380,006 | .80 | -10.6 | + 2.6 | | | 22 |
| 138,023 | 1,002,836 | 7.27 | 1 | 1 | 189,256 | 1,457,631 | 7.70 | +37.1 | +45.4 | | | 23 |
| 15,631 | 321,600 | 20.57 | 1 | 1 | 14,687 | 314,075 | 21.38 | - 6.0 | - 2.3 | | | 24 |
| 153,654 | 1,324,436 | 8.62 | 1 | 1 | 203,943 | 1,771,706 | 8.67 | +32.7 | +33.8 | | | 25 |
| 154,525 | 5,493,642 | 35.55 | 1 | 1 | 167,157 | 6,148,654 | 36.78 | + 8.2 | +10.1 | | | 26 |
| 8,798 | 2,146,712 | 244.00 | | | 9,816 | 2,296,944 | 234.00 | +11.6 | + 7.0 | | | 27 |
| 3,865 | 842,570 | 218.00 | 13 | 13 | 2,500 | 730,000 | 292.00 | -35.3 | -13.4 | | | 28 |
| 2,302 | 1,860 | 0.808 | 19 | 19 | 1,800 | 1,629 | 0.905 | -21.8 | -12.4 | | | 29 |
| — | 2,991,142 | — | | | — | 3,028,573 | — | — | + 1.3 | | | 30 |
| 11,209 | 67,691 | 6.04 | | | 9,357 | 79,535 | 8.50 | -16.5 | +17.5 | | | 31 |
| — | ^d 379,438,877 | — | | 5 | — | ^d 451,275,766 | — | — | — | | | 32 |
| — | 43,191,213 | — | 6 | 6 | — | 61,612,962 | — | — | +42.7 | | | 33 |
| (b) | (b) | — | | | 1,454 | 23,814 | 16.38 | — | — | | | 34 |
| 4,359,719 | 109,717,853 | 25.17 | 4 | 4 | (b) | (b) | — | — | — | | | 35 |
| 187,082 | 1,825,920 | 9.76 | 2 | 2 | (b) | (b) | — | — | — | | | 36 |
| 95,204 | 23,229,776 | 244.00 | ^e 4 | ^e 4 | (b) | (b) | — | — | — | | | 37 |
| — | 3,728,334 | — | | | — | 3,895,042 | — | — | + 4.5 | | | 38 |
| — | 181,693,096 | — | | | — | 65,531,818 | — | — | — | | | 39 |
| — | ^d \$561,131,973 | — | | | — | ^d \$516,807,584 | — | — | — | | | 40 |

^a Rank among districts—U. S. Bureau of Mines.^f Other processed minerals produced in Illinois include pig lead, expanded vermiculite, alumina, phosphates, etc., but data for them are not available.^e Rank among states for total slab zinc smelted.

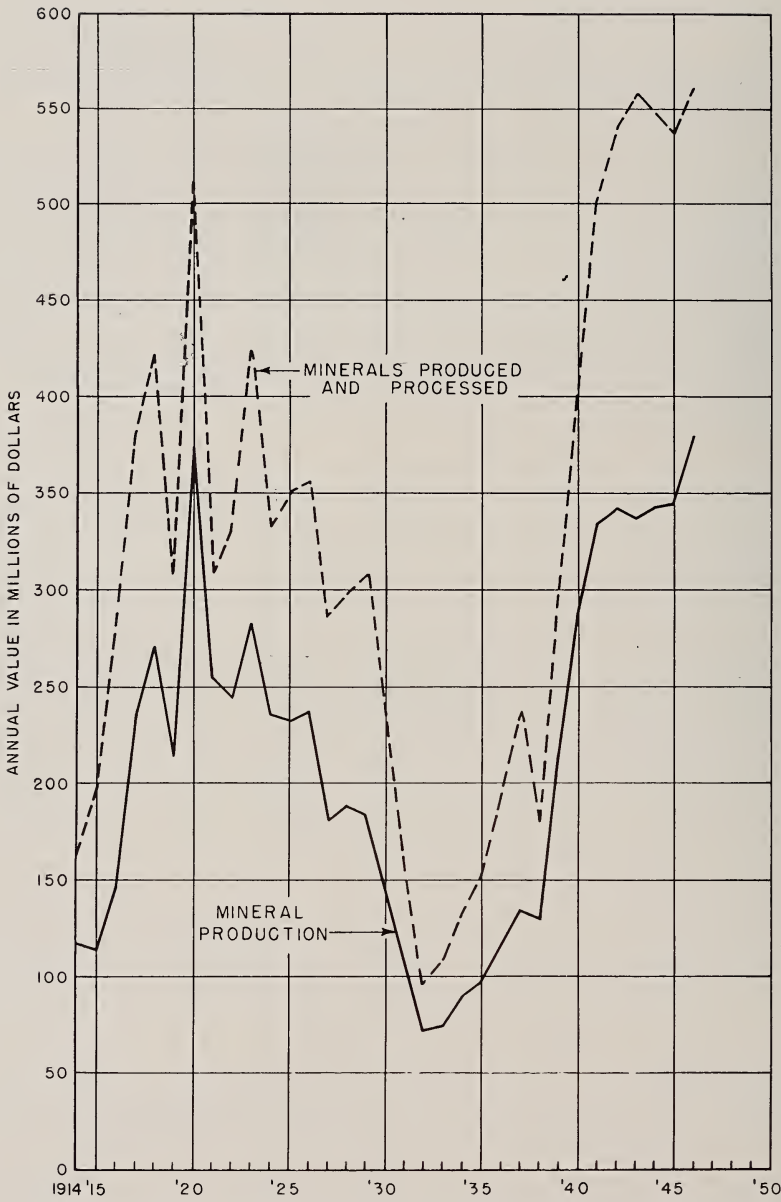


FIG. 1.—Value of annual mineral production in Illinois, 1914-1946.

TABLE 2.—VALUE OF ILLINOIS MINERAL PRODUCTION, 1914–1947^a
(In thousands of dollars)

| Year | Mineral production of Illinois (thousands) | Minerals processed, but mostly not mined, in Illinois (thousands) | Total minerals produced and processed (thousands) |
|-----------|-----------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------|
| 1914..... | \$117,166 | \$ 44,843 | \$162,009 |
| 15..... | 114,446 | 82,871 | 197,317 |
| 1916..... | 146,360 | 130,082 | 276,442 |
| 17..... | 234,736 | 144,754 | 379,490 |
| 18..... | 271,244 | 149,740 | 420,984 |
| 19..... | 213,701 | 95,077 | 308,778 |
| 20..... | 373,926 | 137,228 | 511,154 |
| 1921..... | 254,019 | 54,136 | 308,155 |
| 22..... | 244,618 | 85,820 | 330,438 |
| 23..... | 282,761 | 142,131 | 424,892 |
| 24..... | 235,796 | 95,506 | 331,302 |
| 25..... | 231,658 | 118,702 | 350,360 |
| 1926..... | 237,242 | 119,642 | 356,884 |
| 27..... | 180,394 | 105,099 | 285,493 |
| 28..... | 188,099 | 110,622 | 298,721 |
| 29..... | 182,791 | 125,516 | 308,307 |
| 30..... | 148,311 | 89,303 | 237,614 |
| 1931..... | 108,066 | 52,014 | 160,080 |
| 32..... | 71,693 | 24,385 | 96,078 |
| 33..... | 74,837 | 34,786 | 109,623 |
| 34..... | 89,212 | 41,405 | 130,617 |
| 35..... | 96,484 | 57,038 | 153,522 |
| 1936..... | 117,916 | 78,693 | 196,609 |
| 37..... | 133,437 | 104,359 | 237,796 |
| 38..... | 130,155 | 50,482 | 180,637 |
| 39..... | 215,157 | 86,324 | 301,481 |
| 40..... | 287,327 | 114,814 | 402,141 |
| 1941..... | 333,225 | 168,338 | 501,563 |
| 42..... | 341,835 | 199,281 | 541,116 |
| 43..... | 337,912 | 221,939 | 559,851 |
| 44..... | 342,832 | 206,833 | 549,666 |
| 45..... | *344,267 | 193,658 | *537,925 |
| 1946..... | *379,439 | *181,693 | *561,132 |
| 47..... | 451,276 | 65,532 | 516,808 |

* Revised figures.

^a Compiled from following sources:

For years 1914-1922, Incl.—U. S. Geological Survey, Mineral Resources of United States.

1923-1931, “ —U. S. Bureau of Mines, Mineral Resources of United States.

1932-1938, “ —U. S. Bureau of Mines, Minerals Yearbooks.

1939-1947, “ —Summary of canvass made by Illinois Geological Survey and U. S. Bureau of Mines,
and from Minerals Yearbooks.

COAL

COAL IN 1947

A rise in coal output from 349 million tons in 1938 to a high of 619 million tons in 1947 comprises one of the most remarkable decades in coal production history. The rapid increase in the early years of this decade reflects the high level of industrial activity in the production of war materials. The slight decline in 1945 and 1946 was followed by a reversal of the postwar trend and a sharp increase up to the highest annual level achieved in the war years (table 3).

This postwar high demand reflects the unusual conditions affecting the coal industry in the United States. Shortages of civilian goods set the stage for a high level of industrial production with its high demand for coal.

In addition to meeting a high demand at home, the United States was called upon to furnish coal to Europe, directly through shipments and indirectly through the supply of goods and materials for the production of which coal was required.

Exports of coal have not ordinarily been an important factor in the American coal economy. The principal importer of American coal normally is the Dominion of Canada and, second, the countries and islands of the Caribbean area. Annual requirements in these areas were approximately 10 to 12 million tons (table 18). The exceptionally large exports in 1919-21 were caused by a deficit of coal in western Europe, and the

high export in 1926 was due to a prolonged strike in the British coal mines. Again in 1940 and the ensuing war years, exports of coal moved upward to support the western European nations in the war effort and to supply coal shortages in these same western nations. The high demand simultaneously by western European nations and the domestic economy in the United States maintained employment and activity in the coal mines at a high level. Under the pressure of demand, both wages and prices increased substantially (table 17).

THE NATIONAL PICTURE

The production of coal in the United States in 1947 was 619 million tons. This is a 16 percent increase above that of 1946 and practically equals the peak war year of 1944. This is shown in table 3 and figure 2.

The national coal production, by states, is shown for the years 1943 to 1947 in table 4.

PRODUCTION BY DISTRICTS

Coal production by districts is shown in table 5 and figures 3 and 4 for three years. Of particular interest are districts east of the Mississippi River (fig. 4) which produce more than 90 percent of bituminous coal output.

Although competition among producing districts in price areas is keen, there is a

TABLE 3.—NATIONAL BITUMINOUS COAL OUTPUT SINCE 1938^a

| Year | Tonnage output in thousands | Percent increase by years | Year | Tonnage output in thousands | Percent increase-decrease by years |
|-----------|-----------------------------|---------------------------|-------------------------|-----------------------------|------------------------------------|
| 1938..... | 348,545 | | 1943..... | 590,177 | + 1.3 |
| 1939..... | 394,855 | +13.3 | 1944..... | 619,576 | + 4.8 |
| 1940..... | 460,772 | +16.7 | 1945..... | 577,617 | - 6.8 |
| 1941..... | 514,149 | +11.6 | 1946 [*] | 533,922 | - 7.6 |
| 1942..... | 582,693 | +13.3 | 1947 ^b | 619,000 | +15.9 |

^{*} Revised figure.

^a Source: U. S. Bureau of Mines.

^b Preliminary.

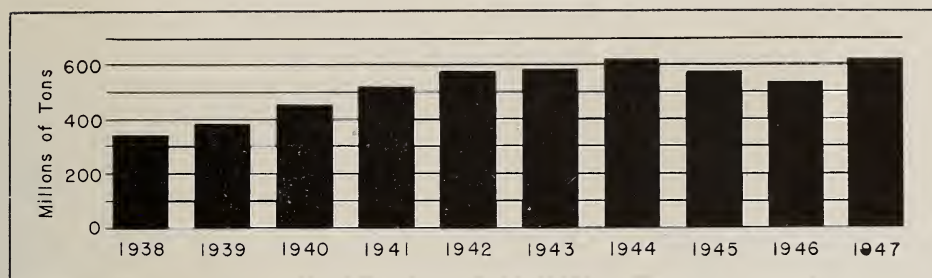


FIG. 2.—National bituminous coal output, 1938-1947.

certain degree of market specialization among the several districts, based mainly on the characteristics of the product.

Districts 2, 7, and 8 (fig. 4) supply cok-

ing coal for the blast furnaces and also a high percentage of fuel used for domestic heating. These two markets are, in a sense, complementary. Coal suitable for coking

TABLE 4.—BITUMINOUS COAL PRODUCTION IN THE UNITED STATES BY STATES, 1943-1947^a
(In thousands of tons)

| State | 1943 | 1944 | 1945 | 1946 | 1947 ^b |
|---------------------------------|---------|---------|---------|---------|-------------------|
| Alabama..... | 17,160 | 18,752 | 18,236 | 16,183 | 18,572 |
| Arkansas..... | 1,718 | 1,972 | 1,854 | 1,631 | 1,806 |
| Colorado..... | 8,324 | 8,168 | 7,621 | 5,914 | 6,266 |
| Georgia..... | 14 | 24 | 43 | 114 | 20 |
| Illinois ^d | 73,345 | 77,400 | 73,447 | 63,767 | 68,325 |
| Indiana..... | 25,065 | 27,962 | 25,183 | 21,697 | 25,315 |
| Iowa..... | 2,771 | 2,141 | 2,046 | 1,788 | 1,790 |
| Kansas..... | 3,437 | 3,369 | 3,228 | 2,493 | 2,680 |
| Kentucky..... | 63,211 | 71,356 | 69,593 | 66,553 | 79,150 |
| Maryland..... | 1,933 | 1,870 | 1,763 | 2,003 | 1,978 |
| Michigan..... | 169 | 140 | 126 | 80 | 18 |
| Missouri..... | 4,310 | 4,779 | 3,983 | 3,733 | 4,020 |
| Montana..... | 4,833 | 4,844 | 4,467 | 3,723 | 3,260 |
| New Mexico..... | 1,851 | 1,744 | 1,484 | 1,280 | 1,426 |
| North Dakota..... | 2,500 | 2,366 | 2,522 | 2,555 | 2,795 |
| Ohio..... | 32,255 | 33,877 | 32,737 | 32,314 | 38,675 |
| Oklahoma..... | 2,838 | 3,209 | 2,909 | 2,647 | 3,098 |
| Pennsylvania (bitum.)..... | 141,050 | 146,052 | 132,965 | 125,497 | 145,880 |
| Tennessee..... | 7,179 | 7,266 | 6,271 | 5,618 | 6,590 |
| Texas..... | 153 | 109 | 80 | 56 | 60 |
| Utah..... | 6,666 | 7,119 | 6,679 | 5,994 | 7,330 |
| Virginia..... | 20,280 | 19,514 | 17,235 | 15,527 | 19,406 |
| Washington..... | 1,528 | 1,524 | 1,357 | 991 | 1,138 |
| West Virginia..... | 158,804 | 164,704 | 152,035 | 144,020 | 173,740 |
| Wyoming..... | 9,155 | 9,540 | 9,847 | 7,635 | 7,863 |
| Other States ^e | 342 | 383 | 342 | 407 | 374 |
| Total..... | 590,891 | 620,184 | 578,053 | 534,220 | 621,575 |

^a Source: U. S. Bureau of Mines.

^b Preliminary figures.

^c Includes Alaska.

^d Illinois figures include all mines; for other states only mines producing 1,000 tons or more per year are included.

^e Includes North Carolina.

^f Includes South Dakota.

TABLE 5.—BITUMINOUS COAL AND LIGNITE PRODUCTION BY DISTRICTS, 1945-1947^a
(In thousands of tons)

| | 1945 | | 1946* | | 1947 ^b | |
|------------------------------------|---------|------------------|---------|------------------|-------------------|------------------|
| | Amount | Percent of total | Amount | Percent of total | Amount | Percent of total |
| <i>Price Area 1</i> | | | | | | |
| Dist. 1. Eastern Pennsylvania... | 56,747 | 9.8 | 54,445 | 10.2 | 62,286 | 10.1 |
| Dist. 2. Western Pennsylvania... | 79,068 | 13.7 | 74,775 | 14.0 | 87,674 | 14.2 |
| Dist. 3. Northern West Virginia... | 44,966 | 7.8 | 40,748 | 7.6 | 49,427 | 8.0 |
| Dist. 4. Ohio..... | 32,737 | 5.7 | 32,314 | 6.1 | 38,675 | 6.2 |
| Dist. 5. Michigan..... | 126 | — | 80 | — | 18 | — |
| Dist. 6. Panhandle..... | 4,609 | 0.8 | 4,360 | 0.8 | 5,284 | 0.8 |
| Dist. 7. Southern Numbered 1... | 56,007 | 9.7 | 52,532 | 9.8 | 62,885 | 10.2 |
| Dist. 8. Southern Numbered 2... | 116,749 | 20.2 | 114,256 | 21.4 | 137,298 | 22.2 |
| Total—Price Area 1..... | 391,009 | 67.7 | 373,510 | 69.9 | 443,547 | 71.7 |
| <i>Price Area 2</i> | | | | | | |
| Dist. 9. West Kentucky..... | 20,444 | 3.5 | 17,211 | 3.2 | 20,750 | 3.3 |
| Dist. 10. Illinois..... | 73,011 | 12.6 | 63,469 | 11.9 | 65,750 | 10.6 |
| Dist. 11. Indiana..... | 25,183 | 4.4 | 21,697 | 4.1 | 25,315 | 4.1 |
| Dist. 12. Iowa..... | 2,046 | .3 | 1,788 | .3 | 1,790 | .3 |
| Total—Price Area 2..... | 120,684 | 20.8 | 104,165 | 19.5 | 113,605 | 18.3 |
| <i>Price Area 3</i> | | | | | | |
| Dist. 13. Southeastern..... | 19,551 | 3.4 | 17,188 | 3.2 | 19,732 | 3.2 |
| Total—All Eastern Districts... | 531,244 | | 494,863 | | 576,884 | |
| Percent of U. S. Total..... | | 91.9 | | 92.6 | | 93.2 |
| Total—U. S..... | 577,617 | | 533,922 | | 619,000 | |

* Revised figures.

^a Source: U. S. Bureau of Mines.^b Preliminary figures.

is also excellent for domestic fuel. The small sizes and screenings are therefore absorbed by the coking coal market, and the prepared sizes find a ready outlet for domestic fuel over a large area.

Districts 3, 4, 6, and 9 (fig. 4) market one-third or more of their output as railroad fuel, whereas the remaining districts distribute their output among manufacturing industries, utilities, railroads, and retail yards.

UPPER MISSISSIPPI VALLEY

The Upper Mississippi Valley coal market area includes Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, and the eastern Dakotas and Kansas.

In this area is marketed coal from the Eastern Interior coal field in the states of Illinois, Indiana, and western Kentucky,

and coal from the Appalachian districts of Pennsylvania, West Virginia, eastern Kentucky, and Ohio. Coal is distributed by rail, rail-lake, rail-river, and truck. The coal requirements of the Upper Mississippi Valley include fuel for domestic heating, fuel for general industrial purposes, fuel for rail transportation, and coal for the manufacture of metallurgical coke. Competitive conditions among coals for the several producing districts in the Appalachian fields and in the Eastern Interior districts of Illinois, Indiana, and western Kentucky vary from the keenly competitive struggle in the industrial and railroad fuel markets to the less competitive conditions in the domestic fuel trade and the limited competition in the byproduct coal demand.

Shipments of coal from principal fields competitive with Illinois fields are shown in table 6.

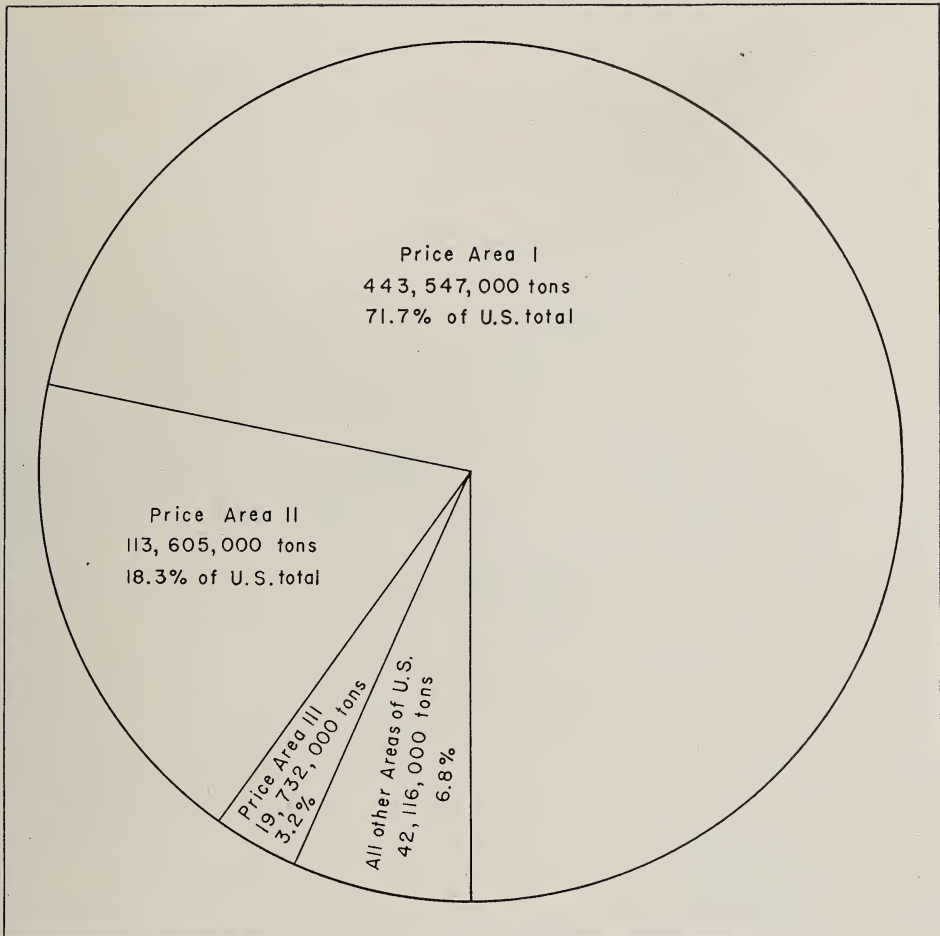


FIG. 3.—Bituminous coal and lignite produced east and west of the Mississippi River, 1947.

TABLE 6.—PRODUCTION IN DISTRICTS WITH LARGE ALL-RAIL SHIPMENTS TO THE UPPER MISSISSIPPI VALLEY, 1943-1947^a
(In thousands of tons)

| Year | Districts 7 and 8 West Virginia, Kentucky, Virginia | | Districts 9, 10 and 11 Illinois, Indiana, West Kentucky | | Illinois | |
|-------------------------|-----------------------------------------------------------|-------|---------------------------------------------------------------|-------|----------|-------|
| | Amount | Index | Amount | Index | Amount | Index |
| 1943..... | 185,074 | 100 | 112,865 | 100 | 72,631 | 100 |
| 1944..... | 188,335 | 102 | 124,219 | 110 | 76,792 | 106 |
| 1945..... | 172,756 | 93 | 118,638 | 105 | 73,011 | 101 |
| 1946*..... | 166,788 | 90 | 102,377 | 91 | 63,469 | 87 |
| 1947 ^b | 200,183 | 108 | 111,815 | 99 | 65,750 | 91 |

* Revised figures.

^a Source: U. S. Bureau of Mines,

^b Preliminary figures.

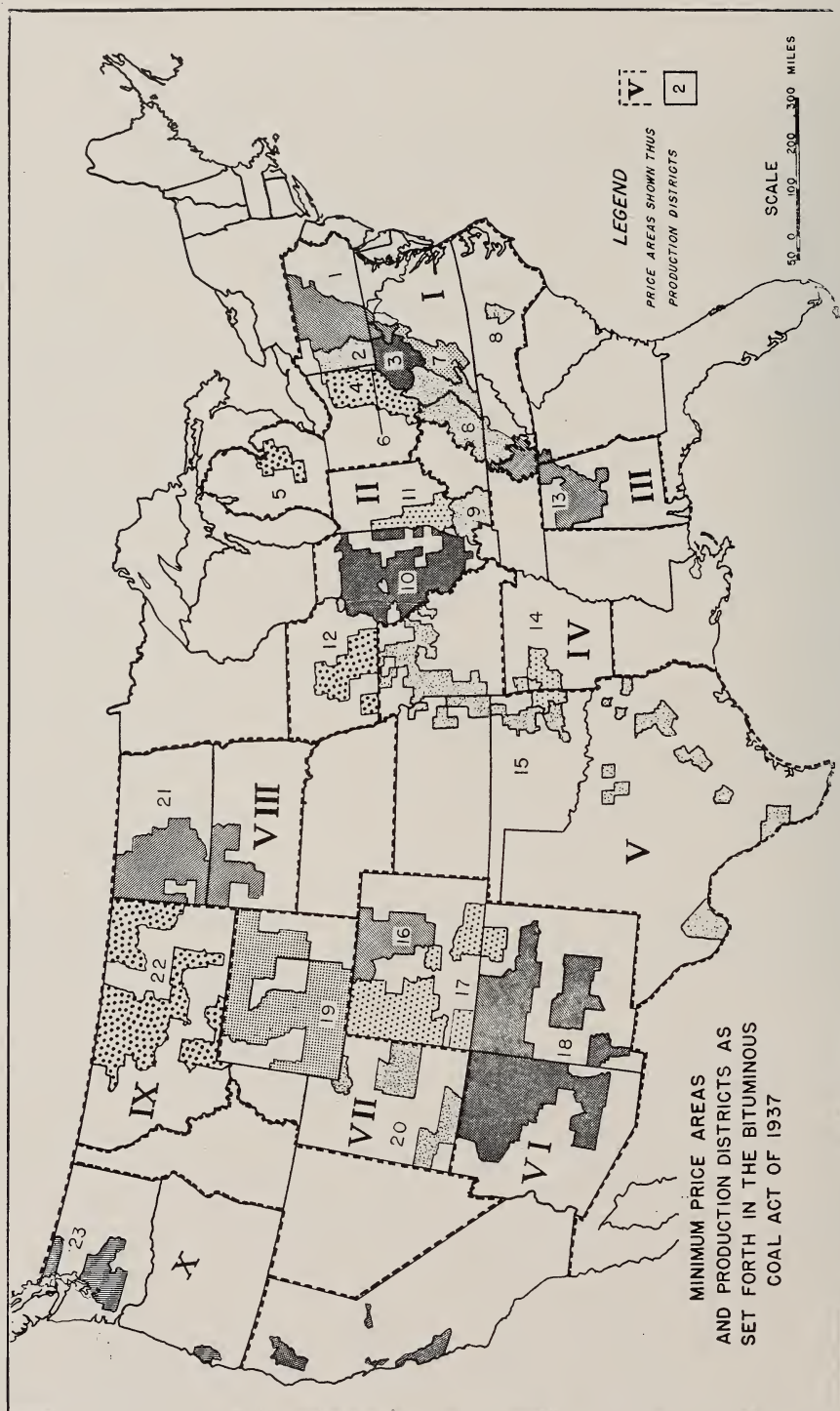


FIG. 4.—Minimum price areas and production districts.

TABLE 7.—SHIPMENTS OF BITUMINOUS COAL INTO THE MISSISSIPPI VALLEY FROM EASTERN AND MIDWESTERN FIELDS, 1940-1946^a

| Fields of origin ^b | 1940 | | 1941 | | 1942 | | 1943 | | 1944 | | 1945 | | 1946 | |
|-----------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | M tons | Percent | M tons | Percent | M tons | Percent | M tons | Percent | M tons | Percent | M tons | Percent | M tons | Percent |
| <i>Appalachian Fields</i> | | | | | | | | | | | | | | |
| Ohio..... | 9,807 | 8.0 | 10,846 | 7.9 | 11,719 | 7.4 | 12,679 | 7.6 | 14,289 | 8.3 | 14,991 | 9.4 | 15,079 | 10.2 |
| Pennsylvania..... | 15,195 | 12.4 | 16,663 | 12.1 | 18,141 | 11.5 | 18,189 | 11.0 | 19,175 | 11.2 | 17,184 | 10.8 | 15,801 | 10.7 |
| Northern West Virginia and Cumberland-Piedmont..... | 3,467 | 2.8 | 4,728 | 3.4 | 5,201 | 3.3 | 6,268 | 3.8 | 7,728 | 4.5 | 7,236 | 4.6 | 5,349 | 3.6 |
| Southern West Virginia: | | | | | | | | | | | | | | |
| High-volatile..... | 16,943 | 13.8 | 18,275 | 13.3 | 21,500 | 13.6 | 22,739 | 13.6 | 22,222 | 13.0 | 19,205 | 12.1 | 19,088 | 12.9 |
| Low-volatile..... | 19,536 | 15.9 | 22,773 | 16.6 | 25,005 | 15.9 | 24,477 | 14.7 | 21,717 | 12.7 | 18,919 | 11.9 | 18,071 | 12.2 |
| East Kentucky, Tennessee, Virginia..... | 18,340 | 14.9 | 18,980 | 13.8 | 22,770 | 14.4 | 23,010 | 13.8 | 20,921 | 12.2 | 18,350 | 11.5 | 17,841 | 12.1 |
| Total from Appalachian fields..... | 83,288 | 67.8 | 92,265 | 67.1 | 104,336 | 66.1 | 107,362 | 64.5 | 106,052 | 61.9 | 95,885 | 60.3 | 91,229 | 61.7 |
| <i>Midwest Fields</i> | | | | | | | | | | | | | | |
| Illinois..... | 27,618 | 22.5 | 30,100 | 21.9 | 36,992 | 23.4 | 42,326 | 25.4 | 46,240 | 27.0 | 44,125 | 27.7 | 39,297 | 26.6 |
| Indiana..... | 10,223 | 8.3 | 12,499 | 9.0 | 14,031 | 8.9 | 13,680 | 8.2 | 15,571 | 9.1 | 14,730 | 9.3 | 12,935 | 8.7 |
| West Kentucky..... | 1,758 | 1.4 | 2,735 | 2.0 | 2,556 | 1.6 | 3,195 | 1.9 | 3,408 | 2.0 | 4,238 | 2.7 | 4,488 | 3.0 |
| Total from Midwest fields..... | 39,599 | 32.2 | 45,334 | 32.9 | 53,579 | 33.9 | 59,201 | 35.5 | 65,219 | 38.1 | 63,093 | 39.7 | 56,720 | 38.3 |
| Grand Total..... | 122,887 | 100.0 | 137,599 | 100.0 | 157,915 | 100.0 | 166,563 | 100.0 | 171,271 | 100.0 | 158,978 | 100.0 | 147,949 | 100.0 |

^a Source: Preprint, U. S. Bureau of Mines Minerals Yearbook, 1946.^b West-bound rail to Mississippi Valley (revenue all-rail shipments, excluding railroad fuel, lake coal, and movements to Kentucky points).

TABLE 8.—PRODUCTION OF BITUMINOUS COAL IN THE EASTERN INTERIOR COAL FIELD,
1943-1947^a
(In thousands of tons)

| Year | Illinois | | Indiana | | West Kentucky | | Total |
|-------------------------|----------|----------------------|---------|----------------------|---------------|----------------------|---------|
| | Amount | Percent ^b | Amount | Percent ^b | Amount | Percent ^b | |
| 1943..... | 72,631 | 64.35 | 25,065 | 22.21 | 15,169 | 13.44 | 112,865 |
| 1944..... | 76,792 | 61.82 | 27,962 | 22.51 | 19,465 | 15.67 | 124,219 |
| 1945..... | 73,011 | 61.54 | 25,183 | 21.23 | 20,444 | 17.23 | 118,638 |
| 1946*..... | 63,469 | 62.00 | 21,697 | 21.20 | 17,211 | 16.80 | 102,377 |
| 1947 ^c | 65,750 | 58.80 | 25,315 | 22.64 | 20,750 | 18.56 | 111,815 |

* Revised figures.

^a Source: U. S. Bureau of Mines.

^b Percent of total in Eastern Interior Coal Field.

^c Preliminary figures.

TABLE 9.—TOTAL PRODUCTION OF COAL BY COUNTIES, 1882-1947^a
(In tons)

| County | Production | County | Production |
|-----------------|-------------|------------------------|---------------|
| Adams..... | 46,186 | Mercer..... | 14,994,188 |
| Bond..... | 7,355,569 | Monroe..... | 8,284 |
| Brown..... | 57,113 | Montgomery..... | 75,398,150 |
| Bureau..... | 48,066,535 | Morgan..... | 177,223 |
| Calhoun..... | 96,247 | Moultrie..... | 2,032,236 |
| Cass..... | 212,477 | Peoria..... | 62,287,671 |
| Christian..... | 163,896,196 | Perry..... | 130,852,288 |
| Clinton..... | 36,889,783 | Pike..... | 5,081 |
| Coles..... | 198,932 | Pope..... | 1,562 |
| Crawford..... | 44,786 | Putnam..... | 10,071,893 |
| Douglas..... | 50,717 | Randolph..... | 55,862,194 |
| Edgar..... | 850,060 | Richland..... | 154 |
| Effingham..... | 796 | Rock Island..... | 3,845,526 |
| Franklin..... | 414,584,730 | St. Clair..... | 199,615,119 |
| Fulton..... | 133,760,251 | Saline..... | 164,065,226 |
| Gallatin..... | 3,919,535 | Sangamon..... | 226,243,772 |
| Greene..... | 620,767 | Schuyler..... | 2,605,042 |
| Grundy..... | 39,756,543 | Scott..... | 612,476 |
| Hamilton..... | 22,097 | Shelby..... | 4,119,550 |
| Hancock..... | 391,168 | Stark..... | 1,226,382 |
| Hardin..... | 40 | Tazewell..... | 17,314,116 |
| Henry..... | 17,151,679 | Vermilion..... | 144,414,528 |
| Jackson..... | 73,776,136 | Wabash..... | 186,144 |
| Jasper..... | 23,739 | Warren..... | 671,877 |
| Jefferson..... | 5,179,014 | Washington..... | 17,095,167 |
| Jersey..... | 118,624 | White..... | 1,676,741 |
| Johnson..... | 242,109 | Will..... | 32,166,155 |
| Kankakee..... | 1,948,786 | Williamson..... | 263,696,320 |
| Knox..... | 18,209,216 | Woodford..... | 7,768,599 |
| La Salle..... | 65,182,287 | Total (1882-1947)..... | 2,969,680,171 |
| Livingston..... | 10,065,054 | Estimated production | |
| Logan..... | 13,934,849 | (1833-1881)..... | 73,386,123 |
| Macon..... | 11,000,468 | Total production | |
| Macoupin..... | 243,988,145 | (1833-1947)..... | 3,043,066,294 |
| McDonough..... | 2,634,288 | | |
| McLean..... | 5,544,139 | | |
| Madison..... | 147,409,358 | | |
| Marion..... | 37,736,376 | | |
| Marshall..... | 12,512,505 | | |
| Menard..... | 13,189,243 | | |

^a Source: Illinois State Dept. of Mines and Minerals.

EASTERN INTERIOR BASIN

In table 7 is given shipments of coal by all-rail haul from coal producing districts in the Appalachian fields and districts in the Eastern Interior basin to markets in the middle west.

Table 8 shows coal production in the Eastern Interior coal basin (fig. 4) for the years 1943-1947, inclusive. The production history of these three competitive districts in Illinois, Indiana, and western Kentucky, and the contribution of each to the total production of the Eastern Interior basin from 1913 to 1942 is shown in table 4 of Report of Investigations No. 94, page 17.

CUMULATIVE COAL PRODUCTION

Table 9 gives cumulative coal production for Illinois, by counties, for the period 1882-1947, as compiled from the Annual Coal Reports of the Department of Mines and Minerals, with an estimate of total production in the State for the period 1833-1881. Sixty-nine counties have a recorded production during this period. Eleven of

TABLE 10.—COUNTIES OF MORE THAN 100 MILLION TONS OUTPUT, 1882-1947^a
(In tons)

| | |
|-------------------------------------|---------------|
| Franklin..... | 414,584,730 |
| Williamson..... | 263,696,320 |
| Macoupin..... | 243,988,145 |
| Sangamon..... | 226,243,772 |
| St. Clair..... | 199,615,119 |
| Saline..... | 164,065,226 |
| Christian..... | 163,896,196 |
| Madison..... | 147,409,358 |
| Vermilion..... | 144,414,528 |
| Fulton..... | 133,760,251 |
| Perry..... | 130,852,288 |
| Total, 11 counties..... | 2,232,525,933 |
| Total, all counties of the state... | 2,969,680,171 |
| Percent produced by 11 counties. | 75.2 |

^a Source: Illinois State Dept. of Mines and Minerals.

these counties produced more than 100 million tons each, the highest recorded production being from Franklin County with a total of 414,584,730 tons. The eleven leading counties in order of output are given in table 10.

The production of bituminous coal in the United States and in Illinois by months is illustrated percentagewise in table 11.

TABLE 11.—PRODUCTION OF BITUMINOUS COAL IN THE UNITED STATES AND IN ILLINOIS BY MONTHS, 1947^a
(In thousands of tons)

| Month | U. S. production | Percent of monthly average | Illinois production | Percent of monthly average | Illinois percent of U. S. total production |
|--------------------------------------------------------------|------------------|----------------------------|---------------------|----------------------------|--------------------------------------------|
| January..... | 59,020 | 113.9 | 6,757 | 118.7 | 11.4 |
| February..... | 51,482 | 99.4 | 5,938 | 104.3 | 11.5 |
| March..... | 55,455 | 107.1 | 6,406 | 112.5 | 11.6 |
| April..... | 41,225 | 79.6 | 4,253 | 74.7 | 10.3 |
| May..... | 56,464 | 109.0 | 5,764 | 101.2 | 10.2 |
| June..... | 47,424 | 91.5 | 4,496 | 79.0 | 9.5 |
| July..... | 39,882 | 77.0 | 4,132 | 72.6 | 10.4 |
| August..... | 50,879 | 98.2 | 5,195 | 91.2 | 10.2 |
| September..... | 52,381 | 101.1 | 5,597 | 98.3 | 10.7 |
| October..... | 57,301 | 110.6 | 5,854 | 102.8 | 10.2 |
| November..... | 52,689 | 101.7 | 5,508 | 96.7 | 10.5 |
| December..... | 54,798 | 105.8 | 5,850 | 102.7 | 10.7 |
| Total..... | 619,000 | | 65,750 | | |
| Small mines and undistributed in Illinois ^b | 2,575 | | 2,575 | | |
| Total..... | 621,575 | | 68,325 | | |
| Monthly Average..... | 51,798 | | 5,694 | | ^c 10.6 |

^a Source: U. S. Bureau of Mines for U. S. and Illinois monthly figures.

^b Source: Illinois State Dept. of Mines and Minerals for Illinois total figure.

^c Average.

The effect of both increased output and change in price levels is shown in table 12. Prices of coal at the mine more than doubled since 1938, and the total value of coal more than trebled.

Tables 13 and 14 show detailed data on production by mines and counties.

GROWTH OF STRIP MINING

Strip mining became an appreciable factor in Illinois in 1915, and in 1940 produced one-fourth of the State's output of coal. The peak output, 17 millions tons, was reached in 1944 (table 15).

PRICES

Coal mine prices per ton of various grades and sizes of coal are shown in table 16 as of December 1946 and December 1947. Wages and prices both increased under the pressure of high demand (table 17).

COAL EXPORTS

The export of coal to foreign nations has become a matter of active interest be-

cause of the competition of foreign buyers with the domestic users. In table 18 is shown the exports of coal from the United States since 1910. Under normal conditions the export level is from 12 to 14 million tons a year of which 3 to 4 million tons go mainly to the Carribean area and the remainder goes to Canada. During the years of the depression, exports fell somewhat below this level. War years and disturbed economic conditions in Europe have upset the normal coal export flow on three occasions. Immediately after World War I, coal supplies were needed to rehabilitate the industries of Europe. Exports rose to a peak of 38 million tons, which were 6.5 percent of the total national output. Again in 1926 there was a heavy movement to Europe, mainly to England. The direct cause of this movement was a prolonged general strike in England in which coal mines were shut down for a period of approximately ten months. Again, at the close of World War II, coal from American mines was needed to restore the economy of western Europe. In this case the demand is still continuing and will carry over well into 1949 and 1950.

SUMMARY OF TABLE 13^a
(In tons)

| Type of mines | 1946 | | 1947 | |
|-------------------|-----------------|-------------------|-----------------|-------------------|
| | Number of mines | Net tons produced | Number of mines | Net tons produced |
| Strip mines | | | | |
| Shipping..... | 36 | 14,302,739 | 39 | 16,776,964 |
| Local..... | 24 | 905,065 | 28 | 1,044,375 |
| Total..... | 60 | 15,207,804 | 67 | 17,821,339 |
| Underground mines | | | | |
| Shipping..... | 124 | 46,630,046 | 121 | 47,835,663 |
| Local..... | 189 | 1,929,232 | 174 | 2,668,239 |
| Total..... | 313 | 48,559,278 | 295 | 50,503,902 |
| Grand Total..... | 373 | 63,767,082 | 362 | 68,325,241 |

^a Source: Illinois State Dept. of Mines and Minerals.

TABLE 13.—COAL PRODUCTION OF ALL ILLINOIS
(In

| County | Shipping mines | | | |
|------------------|-----------------|------------------------|------------------|------------------|
| | Number of mines | Tons mined underground | Tons mined strip | Total tons mined |
| Brown..... | — | — | — | — |
| Bureau..... | 3 | 6,383 | 694,002 | 700,385 |
| Christian..... | 5 | 7,292,172 | — | 7,292,172 |
| Clinton..... | 2 | 332,967 | — | 332,967 |
| Douglas..... | 1 | 50,354 | — | 50,354 |
| Edgar..... | — | — | — | — |
| Franklin..... | 13 | 14,790,608 | — | 14,790,608 |
| Fulton..... | 11 | 107,245 | 6,822,646 | 6,929,891 |
| Gallatin..... | 3 | 83,446 | — | 83,446 |
| Greene..... | — | — | — | — |
| Grundy..... | 1 | — | 142,656 | 142,656 |
| Hancock..... | — | — | — | — |
| Henry..... | 1 | 95,797 | — | 95,797 |
| Jackson..... | 2 | 834,844 | 449,356 | 1,284,200 |
| Jefferson..... | 1 | 533,570 | — | 533,570 |
| Knox..... | 1 | — | 666,842 | 666,842 |
| La Salle..... | 3 | 49,235 | 98,857 | 148,092 |
| Livingston..... | — | — | — | — |
| Logan..... | — | — | — | — |
| McDonough..... | — | — | — | — |
| Macon..... | — | — | — | — |
| Macoupin..... | 10 | 5,037,173 | — | 5,037,173 |
| Madison..... | 4 | 1,789,210 | — | 1,789,210 |
| Marion..... | 1 | 265,006 | — | 265,006 |
| Marshall..... | — | — | — | — |
| Menard..... | — | — | — | — |
| Mercer..... | — | — | — | — |
| Montgomery..... | 1 | 923,812 | — | 923,812 |
| Peoria..... | 1 | 372,153 | — | 372,153 |
| Perry..... | 7 | 2,346,219 | 2,646,283 | 4,992,502 |
| Randolph..... | 4 | 1,542,365 | 1,061,714 | 2,604,079 |
| Rock Island..... | — | — | — | — |
| St. Clair..... | 15 | 2,140,980 | 235,842 | 2,376,822 |
| Saline..... | 18 | 3,497,309 | 644,911 | 4,142,220 |
| Sangamon..... | 4 | 2,027,623 | — | 2,027,623 |
| Schuyler..... | 1 | — | 107,900 | 107,900 |
| Shelby..... | — | — | — | — |
| Stark..... | — | — | — | — |
| Tazewell..... | — | — | — | — |
| Vermilion..... | 4 | 344,700 | 94,108 | 438,808 |
| Warren..... | — | — | — | — |
| Washington..... | 3 | 343,499 | — | 343,499 |
| Will..... | 2 | — | 1,707,956 | 1,707,956 |
| Williamson..... | 38 | 3,028,993 | 1,403,891 | 4,432,884 |
| Woodford..... | — | — | — | — |
| Total..... | 160 | 47,835,663 | 16,776,964 | 64,612,627 |

MINES BY TYPE OF MINE AND BY COUNTIES, 1947^a
(tons)

| Local mines | | | | County totals | | |
|-----------------|------------------------|------------------|------------------|-----------------|------------------|------------------------|
| Number of mines | Tons mined underground | Tons mined strip | Total tons mined | Number of mines | Total tons mined | Percent of state total |
| 4 | 4 | 172 | 176 | 4 | 176 | — |
| — | — | — | — | 3 | 700,385 | 1.02 |
| 1 | 8,322 | — | 8,322 | 6 | 7,300,494 | 10.70 |
| — | — | — | — | 2 | 332,967 | .50 |
| — | — | — | — | 1 | 50,354 | .07 |
| 2 | 29,054 | — | 29,054 | 2 | 29,054 | .04 |
| — | — | — | — | 13 | 14,790,608 | 21.65 |
| 24 | 171,478 | 9,082 | 180,560 | 35 | 7,110,451 | 10.40 |
| 5 | 6,330 | — | 6,330 | 8 | 89,776 | .13 |
| 1 | 32 | — | 32 | 1 | 32 | — |
| 1 | — | 68,925 | 68,925 | 2 | 211,581 | .31 |
| 1 | — | 18,758 | 18,758 | 1 | 18,758 | .03 |
| 3 | 20,853 | — | 20,853 | 4 | 116,650 | .17 |
| 4 | 43,034 | — | 43,034 | 6 | 1,327,234 | 1.94 |
| 1 | — | 42 | 42 | 2 | 533,612 | .80 |
| 3 | 110,757 | — | 110,757 | 4 | 777,599 | 1.14 |
| 3 | 15,862 | 9,519 | 25,381 | 6 | 173,473 | .25 |
| 2 | — | 6,503 | 6,503 | 2 | 6,503 | .01 |
| 2 | 53,658 | — | 53,658 | 2 | 53,658 | .08 |
| 5 | 260 | 1,000 | 1,260 | 5 | 1,260 | — |
| 1 | 1,539 | — | 1,539 | 1 | 1,539 | — |
| — | — | — | — | 10 | 5,037,173 | 7.37 |
| 6 | 429,457 | — | 429,457 | 10 | 2,218,667 | 3.24 |
| — | — | — | — | 1 | 265,006 | .40 |
| 1 | 98 | — | 98 | 1 | 98 | — |
| 5 | 34,489 | — | 34,489 | 5 | 34,489 | .05 |
| 2 | 445 | — | 445 | 2 | 445 | — |
| — | — | — | — | 1 | 923,812 | 1.35 |
| 27 | 296,314 | 2,200 | 298,514 | 28 | 670,667 | .98 |
| 4 | 13,936 | 11,534 | 25,470 | 11 | 5,017,972 | 7.34 |
| 4 | 56,748 | — | 56,748 | 8 | 2,660,827 | 3.90 |
| 2 | 413 | — | 413 | 2 | 413 | — |
| 11 | 152,148 | 911,330 | 1,063,478 | 26 | 3,440,300 | 5.03 |
| 6 | 9,526 | — | 9,526 | 24 | 4,151,746 | 6.07 |
| 10 | 230,482 | — | 230,482 | 14 | 2,258,105 | 3.30 |
| 9 | 10,966 | 1,885 | 12,851 | 10 | 120,751 | .18 |
| 2 | 200 | — | 200 | 2 | 200 | — |
| 1 | 18 | — | 18 | 1 | 18 | — |
| 2 | 92,361 | — | 92,361 | 2 | 92,361 | .13 |
| 21 | 217,793 | 3,425 | 221,218 | 25 | 660,026 | .96 |
| 1 | 2,339 | — | 2,339 | 1 | 2,339 | — |
| 2 | 9,049 | — | 9,049 | 5 | 352,548 | .51 |
| — | — | — | — | 2 | 1,707,956 | 2.50 |
| 22 | 637,798 | — | 637,798 | 60 | 5,070,682 | 7.42 |
| 1 | 12,476 | — | 12,476 | 1 | 12,476 | .02 |
| | | | | | Other | .01 |
| 202 | 2,668,239 | 1,044,375 | 3,712,614 | 362 | 68,325,241 | |

^a Source: Illinois State Dept. of Mines and Minerals.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES, 1882-1947
 Compiled from Annual Coal Reports, Illinois State Department of Mines and Minerals, 1882-1947.

| Year | Adams | Bond | Brown | Bureau | Calhoun | Cass |
|-------------------|--------|-----------|--------|------------|---------|---------|
| 1882 | | | | 61,454 | | |
| 1883 | | | | 77,381 | | |
| 1884 | | | | 88,564 | 160 | 3,425 |
| 1885 | | 7,000 | | 95,067 | 200 | 2,225 |
| 1886 | | 18,560 | | 140,562 | | 3,227 |
| 1887 | | 36,076 | | 429,580 | | 2,325 |
| 1888 | | 38,200 | | 635,097 | 1,036 | 7,300 |
| 1889 | | 59,724 | | 493,730 | 1,078 | 4,414 |
| 1890 | | 66,746 | | 372,701 | 1,468 | 4,650 |
| 1891 | | 102,535 | | 701,064 | 2,773 | 6,466 |
| 1892 | | 121,812 | | 943,496 | 4,637 | 15,330 |
| 1893 | | 78,600 | | 1,143,270 | 4,584 | 23,150 |
| 1894 | | 79,591 | | 878,937 | 3,487 | 18,900 |
| 1895 | | 93,515 | | 834,541 | 9,200 | 19,120 |
| 1896 | | 71,058 | | 1,042,304 | 6,000 | 8,612 |
| 1897 | | 104,256 | 1,760 | 1,145,312 | 3,868 | 4,536 |
| 1898 | | 96,314 | 1,940 | 865,892 | 4,893 | 2,900 |
| 1899 | | 100,955 | 2,630 | 1,410,524 | 4,118 | 3,430 |
| 1900 | | 163,204 | 2,992 | 1,338,231 | 6,952 | 2,650 |
| 1901 | | 208,668 | 1,950 | 1,549,056 | 5,204 | 2,450 |
| 1902 | | 100,740 | 2,116 | 1,732,813 | 3,429 | 2,100 |
| 1903 | | 176,000 | 1,585 | 1,778,302 | 4,928 | 2,807 |
| 1904 | | 176,116 | 1,583 | 1,832,577 | 3,110 | 2,780 |
| 1905 | | 129,815 | 1,606 | 1,751,875 | 2,880 | 2,590 |
| 1906 | | 130,521 | 1,694 | 1,547,456 | 3,000 | 750 |
| 1907 | | 136,967 | 380 | 1,891,900 | 4,450 | 1,625 |
| 1908 | | 103,518 | 400 | 1,688,528 | 2,407 | 800 |
| 1909 | | 93,095 | 270 | 1,654,902 | 4,330 | |
| 1910 | | 103,537 | 240 | 1,352,994 | 4,620 | |
| 1911 | | 144,824 | | 1,234,121 | 1,775 | |
| 1912 | | 183,180 | | 1,681,103 | 1,660 | |
| 1913 | | 231,999 | | 1,798,436 | | 560 |
| 1914 | | 208,266 | | 1,467,022 | | 625 |
| 1915 | | 58,482 | | 1,236,873 | | 1,400 |
| 1916 | | 56,482 | | 1,298,582 | | 1,200 |
| 1917 | | 107,895 | | 1,390,552 | | 1,500 |
| 1918 | 444 | 180,328 | 675 | 1,350,890 | | 1,686 |
| 1919 | 20 | 179,459 | 980 | 1,081,559 | | 669 |
| 1920 | | 188,697 | 3,068 | 926,207 | | 4,233 |
| 1921 | | 185,112 | 470 | 666,575 | | 6,398 |
| 1922 | | 189,197 | | 489,846 | | 6,912 |
| 1923 | | 244,885 | 150 | 520,028 | | 9,014 |
| 1924 | | 265,019 | 60 | 472,483 | | 4,210 |
| 1925 | 390 | 296,383 | | 396,542 | | 3,844 |
| 1925 ^a | 480 | 189,150 | | 207,807 | | 1,918 |
| 1926 | 1,568 | 359,193 | | 380,428 | | 2,371 |
| 1927 | 240 | 208,081 | | 119,052 | | 1,528 |
| 1928 | 68 | 114,853 | | 5,009 | | 886 |
| 1929 | | 205,688 | | 8,175 | | 500 |
| 1930 | | 130,825 | | 13,324 | | 755 |
| 1931 | | 52,018 | | 10,973 | | |
| 1932 | | 36,549 | | 16,632 | | 1,240 |
| 1933 | | | | 18,268 | | 812 |
| 1934 | 64 | 28,612 | 3,052 | 31,851 | | 1,758 |
| 1935 | 412 | 84,355 | 1,650 | 59,688 | | 2,259 |
| 1936 | 112 | 112,492 | 1,669 | 68,017 | | 325 |
| 1937 | 909 | 51,757 | 20,231 | 70,527 | | 915 |
| 1938 | 21,024 | 71,725 | 812 | 60,016 | | 2,632 |
| 1939 | 12,358 | 103,583 | 367 | 57,771 | | 2,269 |
| 1940 | 7,379 | 115,038 | 387 | 66,688 | | 607 |
| 1941 | 567 | 123,563 | 559 | 63,145 | | 889 |
| 1942 | 151 | 50,756 | 31 | 113,403 | | |
| 1943 | | | 60 | 153,871 | | |
| 1944 | | | | 120,463 | | |
| 1945 | | | | 133,349 | | |
| 1946 | | | 1,570 | 98,764 | | |
| 1947 | | | 176 | 700,385 | | |
| Total | 46,186 | 7,355,569 | 57,113 | 48,066,535 | 96,247 | 212,477 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Christian | Clinton | Coles | Crawford | Douglas | Edgar | Effingham |
|---------------------|-------------|------------|---------|----------|---------|---------|-----------|
| 1882. | | 40,000 | | | | | |
| 1883. | | 48,000 | 13,000 | | | 14,419 | |
| 1884. | | 61,389 | 54,000 | | | 21,720 | |
| 1885. | 33,203 | 59,442 | 31,000 | | | 16,200 | |
| 1886. | 102,565 | 61,537 | 39,110 | | | 18,022 | |
| 1887. | 149,973 | 55,238 | 34,612 | | | | |
| 1888. | 147,030 | 66,463 | 27,210 | | | | |
| 1889. | 249,774 | 121,557 | | | | | |
| 1890. | 439,451 | 170,416 | | | | | 796 |
| 1891. | 718,326 | 174,166 | | | | | |
| 1892. | 767,354 | 191,873 | | | | | |
| 1893. | 839,650 | 255,095 | | | | | |
| 1894. | 1,005,500 | 200,920 | | | | | |
| 1895. | 735,361 | 284,487 | | | | | |
| 1896. | 763,228 | 309,504 | | | | | |
| 1897. | 837,897 | 328,184 | | | | | |
| 1898. | 495,616 | 417,584 | | | | | |
| 1899. | 572,459 | 434,735 | | | | | |
| 1900. | 652,662 | 535,601 | | | | | |
| 1901. | 578,482 | 644,664 | | | | | |
| 1902. | 725,088 | 724,462 | | | | 800 | |
| 1903. | 926,563 | 870,518 | | | | | |
| 1904. | 986,685 | 925,515 | | | | 6,022 | |
| 1905. | 857,890 | 904,826 | | | | 5,550 | |
| 1906. | 826,500 | 770,689 | | | | 3,300 | |
| 1907. | 1,235,566 | 1,061,410 | | | | 790 | |
| 1908. | 1,426,123 | 1,152,670 | | | | 4,971 | |
| 1909. | 1,380,515 | 1,051,108 | | | | 280 | |
| 1910. | 1,317,487 | 1,000,935 | | | | 371 | |
| 1911. | 1,206,467 | 1,000,536 | | | | 371 | |
| 1912. | 1,346,191 | 1,012,982 | | | | | |
| 1913. | 1,481,737 | 1,036,303 | | | | | |
| 1914. | 1,412,246 | 1,109,162 | | | | | |
| 1915. | 2,020,675 | 1,142,264 | | | | | |
| 1916. | 2,373,362 | 1,395,588 | | | | | |
| 1917. | 2,822,167 | 1,426,594 | | | | | |
| 1918. | 3,221,234 | 1,429,569 | | | | | |
| 1919. | 3,034,111 | 1,435,909 | | | | | |
| 1920. | 2,608,052 | 1,092,882 | | | | | |
| 1921. | 3,216,066 | 1,165,050 | | | | | |
| 1922. | 2,791,110 | 747,788 | | | | | |
| 1923. | 3,610,774 | 680,931 | | 1,086 | | | |
| 1924. | 3,825,663 | 862,615 | | | | | |
| 1925. | 3,823,214 | 905,382 | | | | 4,420 | |
| 1925 ^a . | 2,239,921 | 537,429 | | 200 | | 2,404 | |
| 1926. | 4,295,495 | 800,527 | | | | 3,549 | |
| 1927. | 2,707,681 | 583,079 | | | | 19,797 | |
| 1928. | 3,604,472 | 508,112 | | | | 31,534 | |
| 1929. | 3,655,022 | 542,843 | | | | 10,243 | |
| 1930. | 3,635,976 | 364,767 | | 3,500 | | 9,896 | |
| 1931. | 2,987,378 | 183,507 | | 3,500 | | 9,428 | |
| 1932. | 1,844,735 | 92,895 | | | | 18,266 | |
| 1933. | 3,840,792 | 212,224 | | | | 19,299 | |
| 1934. | 3,866,706 | 284,250 | | 5,578 | | 24,290 | |
| 1935. | 3,914,908 | 243,418 | | 5,078 | | 36,905 | |
| 1936. | 4,489,711 | 303,013 | | 3,479 | | 34,463 | |
| 1937. | 4,759,298 | 264,413 | | 1,436 | | 63,575 | |
| 1938. | 3,704,670 | 128,222 | | 1,773 | | 84,611 | |
| 1939. | 4,171,948 | 108,771 | | 2,386 | | 103,699 | |
| 1940. | 5,140,275 | 163,920 | | 5,473 | | 40,301 | |
| 1941. | 5,487,759 | 229,530 | | 11,081 | | 29,483 | |
| 1942. | 6,033,537 | 285,683 | | 216 | | 37,305 | |
| 1943. | 6,846,942 | 382,121 | | | | 34,365 | |
| 1944. | 7,896,234 | 366,843 | | | | 41,408 | |
| 1945. | 7,492,841 | 384,391 | | | | 33,591 | |
| 1946. | 6,415,384 | 228,315 | | | 363 | 35,358 | |
| 1947. | 7,300,494 | 332,967 | | | 50,354 | 29,054 | |
| Total..... | 163,896,196 | 36,889,783 | 198,932 | 44,786 | 50,717 | 850,060 | 796 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Franklin | Fulton | Gallatin | Greene | Grundy | Hamilton |
|-------------------------|-------------|-------------|-----------|---------|------------|----------|
| 1882..... | | 240,315 | 30,000 | 3,260 | 506,402 | |
| 1883..... | | 265,664 | | 7,005 | 526,888 | |
| 1884..... | | 298,431 | 30,400 | 15,840 | 713,234 | |
| 1885..... | | 280,005 | | 16,080 | 793,424 | |
| 1886..... | | 238,489 | | 12,172 | 792,954 | |
| 1887..... | | 337,215 | 31,437 | 12,578 | 776,625 | |
| 1888..... | | 461,589 | 45,374 | 14,494 | 862,866 | |
| 1889..... | | 366,577 | 30,045 | 19,048 | 698,033 | |
| 1890..... | 700 | 404,417 | 52,383 | 11,714 | 654,017 | 450 |
| 1891..... | 200 | 484,117 | 34,462 | 16,442 | 921,907 | 280 |
| 1892..... | 200 | 666,473 | 14,502 | 19,870 | 1,175,084 | 220 |
| 1893..... | 120 | 772,497 | 17,457 | 10,995 | 1,186,919 | 244 |
| 1894..... | 206 | 557,703 | 155,351 | 18,600 | 1,130,420 | 206 |
| 1895..... | | 468,792 | 20,330 | 11,345 | 1,261,838 | 4,645 |
| 1896..... | | 516,349 | 26,350 | 8,270 | 1,247,394 | 1,000 |
| 1897..... | | 469,034 | 19,945 | 7,200 | 1,077,576 | 760 |
| 1898..... | | 563,397 | 16,812 | 8,520 | 796,249 | 4,882 |
| 1899..... | | 601,084 | 16,754 | 14,370 | 1,280,332 | 640 |
| 1900..... | | 665,439 | 13,808 | 14,020 | 1,299,863 | 4,480 |
| 1901..... | | 646,400 | 21,414 | 13,233 | 1,293,092 | 840 |
| 1902..... | | 889,679 | 38,524 | 9,491 | 1,383,336 | 550 |
| 1903..... | | 1,036,496 | 45,400 | 4,497 | 1,457,935 | 700 |
| 1904..... | 4,240 | 1,284,279 | 68,411 | 10,904 | 1,405,158 | 2,000 |
| 1905..... | 136,788 | 1,439,489 | 76,629 | 14,659 | 1,326,109 | 200 |
| 1906..... | 387,230 | 1,593,793 | 99,860 | 8,016 | 1,170,625 | |
| 1907..... | 863,165 | 1,993,401 | 88,908 | 3,830 | 1,327,197 | |
| 1908..... | 1,678,195 | 2,141,489 | 75,322 | 15,564 | 1,174,482 | |
| 1909..... | 2,442,978 | 2,205,322 | 58,218 | 12,160 | 1,177,073 | |
| 1910..... | 2,071,143 | 1,979,138 | 76,692 | 4,660 | 927,152 | |
| 1911..... | 2,356,439 | 1,865,222 | 65,105 | 6,428 | 601,393 | |
| 1912..... | 4,026,815 | 2,437,173 | 73,620 | 5,400 | 756,388 | |
| 1913..... | 5,232,526 | 2,533,079 | 78,099 | 3,845 | 427,515 | |
| 1914..... | 6,595,799 | 2,302,806 | 67,509 | 9,160 | 420,616 | |
| 1915..... | 7,324,644 | 2,035,221 | 73,863 | 8,000 | 333,682 | |
| 1916..... | 9,070,811 | 2,036,781 | 68,094 | 14,260 | 305,000 | |
| 1917..... | 11,317,657 | 2,739,185 | 125,366 | 6,604 | 408,064 | |
| 1918..... | 12,007,397 | 2,792,950 | 200,648 | 9,141 | 412,162 | |
| 1919..... | 11,332,912 | 1,937,881 | 205,011 | 848 | 246,956 | |
| 1920..... | 11,299,280 | 2,331,975 | 207,920 | 1,902 | 277,914 | |
| 1921..... | 12,723,700 | 2,219,223 | 213,775 | 9,569 | 204,366 | |
| 1922..... | 9,999,917 | 1,467,577 | 66,896 | 3,041 | 209,150 | |
| 1923..... | 12,845,459 | 2,289,781 | 83,998 | 8,811 | 189,497 | |
| 1924..... | 12,240,925 | 2,060,651 | 23,003 | 900 | 273,083 | |
| 1925..... | 13,082,622 | 1,959,740 | 34,558 | 12,794 | 484,870 | |
| 1925 ^a | 8,463,095 | 1,063,495 | 42,692 | 2,101 | 199,796 | |
| 1926..... | 15,741,550 | 1,852,022 | 43,144 | 5,538 | 444,245 | |
| 1927..... | 10,360,881 | 1,633,925 | 65,132 | 6,947 | 241,099 | |
| 1928..... | 14,078,923 | 1,708,405 | 26,858 | 6,382 | 459,876 | |
| 1929..... | 14,819,448 | 1,729,145 | 23,623 | 765 | 410,442 | |
| 1930..... | 11,997,347 | 1,634,772 | 21,664 | 7,933 | 101,776 | |
| 1931..... | 9,531,560 | 1,398,993 | 29,152 | 17,756 | 32,564 | |
| 1932..... | 7,064,359 | 1,385,613 | 25,239 | 24,442 | 68,791 | |
| 1933..... | 6,703,883 | 1,312,989 | 37,362 | 21,496 | 127,167 | |
| 1934..... | 7,780,162 | 1,693,249 | 33,656 | 15,522 | 138,455 | |
| 1935..... | 7,985,155 | 2,169,839 | 49,281 | 16,238 | 130,907 | |
| 1936..... | 9,432,140 | 2,731,397 | 49,665 | 16,705 | 162,388 | |
| 1937..... | 10,108,267 | 3,334,320 | 34,003 | 8,912 | 169,528 | |
| 1938..... | 7,873,999 | 2,975,404 | 57,719 | 9,186 | 127,620 | |
| 1939..... | 8,653,916 | 3,827,569 | 53,384 | 6,442 | 128,870 | |
| 1940..... | 9,231,757 | 4,039,634 | 57,984 | 6,735 | 115,979 | |
| 1941..... | 10,424,178 | 4,892,399 | 48,404 | 5,707 | 83,293 | |
| 1942..... | 13,924,971 | 5,949,486 | 66,646 | 1,939 | 74,334 | |
| 1943..... | 16,684,419 | 6,464,187 | 45,683 | 375 | 53,244 | |
| 1944..... | 18,173,694 | 6,766,138 | 69,253 | 42 | 30,237 | |
| 1945..... | 17,247,446 | 6,098,360 | 83,522 | 16 | 142,321 | |
| 1946..... | 14,470,904 | 5,112,141 | 73,440 | 16 | 207,190 | |
| 1947..... | 14,790,608 | 7,110,451 | 89,776 | 32 | 211,581 | |
| Total..... | 414,584,730 | 133,760,251 | 3,919,535 | 620,767 | 39,756,543 | 22,097 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Hancock | Hardin | Henry | Jackson | Jasper | Jefferson |
|-------------------|---------|--------|------------|------------|--------|-----------|
| 1882 | | | 216,760 | 429,832 | | |
| 1883 | | | 223,578 | 192,826 | | |
| 1884 | 4,555 | | 185,860 | 288,770 | 1,000 | |
| 1885 | 7,176 | | 167,895 | 175,286 | 8,100 | |
| 1886 | 8,550 | | 137,817 | 375,718 | 826 | |
| 1887 | 6,208 | | 117,533 | 251,644 | | |
| 1888 | 6,515 | | 108,831 | 445,575 | | |
| 1889 | 6,028 | | 101,716 | 477,474 | | |
| 1890 | 6,948 | 40 | 98,734 | 580,521 | | 2,100 |
| 1891 | 6,740 | | 131,986 | 681,859 | | 1,104 |
| 1892 | 5,380 | | 156,736 | 869,514 | | 100 |
| 1893 | 5,060 | | 156,261 | 926,242 | | 90 |
| 1894 | 10,315 | | 111,640 | 766,514 | | |
| 1895 | 10,274 | | 135,967 | 739,661 | | 27,880 |
| 1896 | 4,497 | | 136,415 | 771,384 | | 10,100 |
| 1897 | 4,160 | | 119,497 | 675,212 | | 51,355 |
| 1898 | 5,600 | | 159,049 | 911,194 | | 46,060 |
| 1899 | 5,498 | | 91,265 | 875,711 | | 33,207 |
| 1900 | 5,280 | | 105,589 | 883,311 | | 48,738 |
| 1901 | 4,655 | | 83,535 | 911,245 | | 35,427 |
| 1902 | 6,310 | | 113,697 | 853,056 | | 17,495 |
| 1903 | 11,340 | | 130,663 | 972,284 | | 15,100 |
| 1904 | 12,270 | | 151,887 | 862,641 | | 29,967 |
| 1905 | 11,560 | | 159,019 | 802,101 | | 30,236 |
| 1906 | 10,907 | | 162,429 | 759,962 | | 20,292 |
| 1907 | 11,532 | | 173,587 | 705,363 | | 10,060 |
| 1908 | 6,686 | | 147,482 | 637,090 | | 25,045 |
| 1909 | 6,447 | | 133,920 | 650,033 | | 18,840 |
| 1910 | 10,009 | | 135,633 | 665,385 | | 8,517 |
| 1911 | 2,439 | | 135,811 | 648,551 | | 10,732 |
| 1912 | 2,920 | | 87,171 | 724,374 | | 8,038 |
| 1913 | 2,822 | | 56,151 | 727,484 | | 35,659 |
| 1914 | 4,260 | | 44,819 | 749,445 | | 28,129 |
| 1915 | 3,511 | | 51,983 | 622,318 | | 19,646 |
| 1916 | 4,160 | | 50,019 | 821,121 | | |
| 1917 | 3,965 | | 45,951 | 818,571 | | |
| 1918 | 3,776 | | 57,646 | 975,141 | | |
| 1919 | 3,656 | | 38,708 | 1,146,176 | | |
| 1920 | 5,961 | | 30,654 | 927,221 | | |
| 1921 | 3,260 | | 27,383 | 1,204,949 | | |
| 1922 | 4,825 | | 35,606 | 993,240 | | |
| 1923 | 9,313 | | 63,838 | 957,392 | | |
| 1924 | 2,148 | | 80,524 | 1,539,674 | | 47,820 |
| 1925 | 1,973 | | 162,378 | 1,497,263 | | 271,234 |
| 1925 ^a | 1,071 | | 83,695 | 822,100 | | 250,226 |
| 1926 | 1,383 | | 165,465 | 1,794,831 | | 78,923 |
| 1927 | 2,225 | | 85,625 | 1,007,299 | | 45,160 |
| 1928 | 6,076 | | 34,269 | 904,194 | | |
| 1929 | 5,941 | | 86,263 | 1,576,752 | | |
| 1930 | 3,836 | | 504,761 | 2,054,836 | | |
| 1931 | 3,135 | | 775,956 | 1,938,141 | | |
| 1932 | 4,783 | | 745,982 | 1,393,403 | | |
| 1933 | 3,928 | | 744,313 | 1,234,189 | 125 | 125 |
| 1934 | 2,748 | | 664,858 | 1,525,513 | 280 | 541 |
| 1935 | 5,279 | | 682,502 | 1,336,558 | 525 | 957 |
| 1936 | 3,287 | | 697,565 | 1,840,277 | 450 | 420 |
| 1937 | 2,516 | | 728,938 | 1,720,094 | 555 | 380 |
| 1938 | 3,101 | | 681,911 | 1,322,986 | 1,254 | 1,505 |
| 1939 | 2,325 | | 743,347 | 1,747,917 | 624 | 120,585 |
| 1940 | 15,284 | | 737,132 | 2,049,606 | | 232,599 |
| 1941 | 30,159 | | 636,261 | 2,079,154 | | 322,673 |
| 1942 | 15,833 | | 712,302 | 2,557,115 | | 516,662 |
| 1943 | 11 | | 732,376 | 2,707,336 | | 626,506 |
| 1944 | | | 669,489 | 3,026,855 | | 478,057 |
| 1945 | | | 548,453 | 2,920,208 | | 623,677 |
| 1946 | | | 549,945 | 2,399,210 | | 493,435 |
| 1947 | 18,758 | | 116,650 | 1,327,234 | | 533,612 |
| Total | 391,168 | 40 | 17,151,679 | 73,776,136 | 23,739 | 5,179,014 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Jersey | Johnson | Kaukaee | Knox | La Salle | Livingston |
|-------------------------|---------|---------|-----------|------------|------------|------------|
| 1882..... | 2,300 | 27,000 | 27,000 | 33,836 | 1,169,030 | 214,100 |
| 1883..... | 2,700 | 11,780 | 32,500 | 40,968 | 1,010,857 | 225,400 |
| 1884..... | 2,920 | ..... | 63,000 | 43,467 | 1,064,384 | 201,095 |
| 1885..... | 2,865 | ..... | 47,000 | 44,661 | 1,127,674 | 183,844 |
| 1886..... | 2,160 | ..... | 73,678 | 38,154 | 980,382 | 208,545 |
| 1887..... | 2,684 | 28,000 | 97,000 | 64,324 | 1,125,235 | 387,600 |
| 1888..... | 3,949 | 28,210 | 82,000 | 57,043 | 1,090,435 | 495,388 |
| 1889..... | 4,040 | 3,000 | 67,380 | 57,588 | 1,039,703 | 382,965 |
| 1890..... | 7,500 | 12,110 | 62,460 | 51,653 | 926,214 | 372,504 |
| 1891..... | 4,252 | 424 | 90,908 | 44,974 | 1,378,168 | 458,329 |
| 1892..... | 3,378 | 2,200 | 92,158 | 43,137 | 1,544,311 | 532,667 |
| 1893..... | 5,904 | ..... | 88,700 | 49,908 | 1,494,826 | 542,516 |
| 1894..... | 2,238 | ..... | 57,883 | 51,530 | 1,134,097 | 342,127 |
| 1895..... | ..... | ..... | 83,513 | 58,330 | 1,084,552 | 267,133 |
| 1896..... | 2,325 | 1,250 | 72,395 | 39,557 | 1,409,085 | 218,955 |
| 1897..... | ..... | 2,778 | 180,683 | 41,773 | 1,508,833 | 145,206 |
| 1898..... | 1,680 | 2,030 | 84,632 | 49,819 | 1,165,490 | 122,087 |
| 1899..... | 4,050 | 4,956 | 129,018 | 43,214 | 1,975,939 | 117,248 |
| 1900..... | 2,800 | 7,063 | 138,741 | 54,139 | 2,027,864 | 184,649 |
| 1901..... | 2,791 | 4,209 | 86,745 | 78,362 | 1,833,561 | 294,824 |
| 1902..... | 3,053 | 2,680 | 51,901 | 89,208 | 1,894,510 | 348,291 |
| 1903..... | 2,790 | 2,545 | 58,195 | 84,575 | 1,877,555 | 319,350 |
| 1904..... | 3,405 | 3,050 | 53,405 | 89,992 | 1,773,189 | 150,467 |
| 1905..... | 3,141 | 2,400 | 700 | 68,981 | 1,696,853 | 244,394 |
| 1906..... | ..... | 912 | 28,419 | 63,286 | 1,595,327 | 281,035 |
| 1907..... | 2,040 | 2,900 | 37,828 | 42,668 | 1,644,686 | 269,811 |
| 1908..... | ..... | 2,896 | 17,801 | 44,070 | 1,626,931 | 302,342 |
| 1909..... | 400 | 1,144 | 33,908 | 38,172 | 1,666,220 | 258,495 |
| 1910..... | 1,600 | 1,084 | 8,435 | 38,673 | 1,471,944 | 237,074 |
| 1911..... | 578 | 1,521 | ..... | 45,245 | 1,354,784 | 116,912 |
| 1912..... | 800 | 3,871 | ..... | 34,517 | 1,605,482 | 71,685 |
| 1913..... | 1,400 | 1,084 | ..... | 30,810 | 1,602,966 | 66,424 |
| 1914..... | 12,000 | 3,107 | ..... | 20,457 | 1,456,780 | 77,282 |
| 1915..... | 960 | 3,579 | ..... | 18,162 | 1,273,998 | 112,339 |
| 1916..... | 960 | 1,981 | ..... | 17,140 | 1,170,200 | 103,979 |
| 1917..... | 1,320 | 17,823 | ..... | 38,940 | 1,134,584 | 151,796 |
| 1918..... | 1,390 | 5,510 | ..... | 35,245 | 1,198,360 | 119,399 |
| 1919..... | 893 | ..... | ..... | 20,855 | 923,808 | 89,097 |
| 1920..... | 640 | 3,300 | ..... | 34,753 | 865,357 | 122,043 |
| 1921..... | 950 | 9,670 | ..... | 40,123 | 614,112 | 135,261 |
| 1922..... | 1,500 | 5,825 | ..... | 54,612 | 147,018 | 51,561 |
| 1923..... | ..... | 5,050 | ..... | 53,636 | 575,652 | 51,949 |
| 1924..... | 960 | 5,865 | ..... | 38,071 | 558,458 | 51,889 |
| 1925..... | 1,000 | 2,500 | ..... | 47,296 | 640,806 | 31,892 |
| 1925 ^a | 700 | 4,711 | ..... | 23,041 | 354,330 | 17,744 |
| 1926..... | 740 | 1,410 | ..... | 51,171 | 652,726 | 28,185 |
| 1927..... | 600 | 1,910 | ..... | 133,667 | 444,253 | 22,142 |
| 1928..... | ..... | 565 | ..... | 145,466 | 418,298 | 27,804 |
| 1929..... | ..... | 58 | ..... | 217,886 | 548,257 | 26,638 |
| 1930..... | 600 | 2,286 | 800 | 341,889 | 326,341 | 24,351 |
| 1931..... | 2,086 | 1,690 | ..... | 340,797 | 316,035 | 23,830 |
| 1932..... | 1,901 | 1,440 | ..... | 296,538 | 356,879 | 31,970 |
| 1933..... | 1,747 | 1,388 | ..... | 417,607 | 352,735 | 29,569 |
| 1934..... | 2,380 | 729 | ..... | 387,562 | 324,465 | 25,724 |
| 1935..... | 1,124 | 180 | ..... | 384,269 | 437,541 | 21,564 |
| 1936..... | 1,056 | 250 | ..... | 426,113 | 583,659 | 17,133 |
| 1937..... | 1,001 | 135 | ..... | 863,175 | 476,729 | 16,153 |
| 1938..... | 1,029 | 30 | ..... | 653,353 | 362,851 | 15,381 |
| 1939..... | 714 | 20 | ..... | 779,409 | 380,835 | 13,352 |
| 1940..... | 365 | ..... | ..... | 760,197 | 440,656 | 20,250 |
| 1941..... | 191 | ..... | ..... | 805,066 | 418,443 | 9,317 |
| 1942..... | 42 | ..... | ..... | 1,382,185 | 389,850 | 5,351 |
| 1943..... | ..... | ..... | ..... | 1,617,843 | 331,963 | 1,616 |
| 1944..... | 32 | ..... | ..... | 2,132,790 | 255,598 | 3,133 |
| 1945..... | ..... | ..... | ..... | 1,646,868 | 214,214 | 8,886 |
| 1946..... | ..... | ..... | ..... | 1,548,801 | 161,936 | 6,509 |
| 1947..... | ..... | ..... | ..... | 777,599 | 173,473 | 6,503 |
| Total..... | 118,624 | 242,109 | 1,948,786 | 18,209,216 | 65,182,287 | 10,065,054 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Logan | Macon | Macoupin | McDonough | McLean | Madison |
|-------------------|------------|------------|-------------|-----------|-----------|-------------|
| 1882 | 65,000 | | 780,925 | 110,451 | 60,000 | 578,000 |
| 1883 | 80,000 | 75,634 | 1,233,200 | 189,350 | 60,000 | 767,200 |
| 1884 | 118,800 | 120,470 | 1,164,409 | 113,937 | 125,000 | 560,636 |
| 1885 | 172,000 | 132,000 | 1,080,211 | 109,723 | 135,000 | 601,816 |
| 1886 | 180,000 | 115,272 | 1,085,539 | 91,467 | 120,600 | 521,705 |
| 1887 | 159,000 | 118,183 | 926,588 | 110,103 | 141,700 | 604,214 |
| 1888 | 174,330 | 280,805 | 1,016,624 | 104,274 | 117,110 | 512,948 |
| 1889 | 138,700 | 233,309 | 1,202,187 | 98,386 | 129,322 | 490,181 |
| 1890 | 164,650 | 179,050 | 1,369,919 | 83,401 | 173,492 | 646,228 |
| 1891 | 176,052 | 207,286 | 1,461,344 | 81,732 | 230,129 | 719,308 |
| 1892 | 187,356 | 227,020 | 1,823,136 | 91,127 | 222,372 | 873,770 |
| 1893 | 189,319 | 280,233 | 1,988,069 | 102,926 | 204,827 | 951,894 |
| 1894 | 186,300 | 227,820 | 1,575,045 | 53,367 | 167,294 | 889,768 |
| 1895 | 181,975 | 231,000 | 1,948,992 | 53,387 | 164,140 | 978,161 |
| 1896 | 166,000 | 188,207 | 2,097,333 | 47,821 | 156,891 | 1,080,718 |
| 1897 | 168,917 | 173,163 | 1,975,981 | 40,532 | 153,334 | 780,921 |
| 1898 | 177,935 | 300,264 | 1,264,926 | 77,696 | 171,594 | 630,769 |
| 1899 | 185,981 | 197,048 | 1,646,674 | 51,494 | 209,454 | 1,403,977 |
| 1900 | 214,555 | 117,661 | 1,849,796 | 64,822 | 214,066 | 1,441,650 |
| 1901 | 162,091 | 89,370 | 2,115,319 | 51,042 | 167,759 | 1,595,081 |
| 1902 | 178,031 | 109,720 | 2,075,253 | 49,271 | 166,972 | 1,956,271 |
| 1903 | 373,251 | 130,798 | 2,223,055 | 43,394 | 220,611 | 2,551,587 |
| 1904 | 419,004 | 151,334 | 2,221,474 | 60,574 | 218,140 | 3,030,892 |
| 1905 | 384,288 | 196,628 | 2,530,840 | 43,944 | 175,010 | 2,987,906 |
| 1906 | 450,127 | 266,883 | 3,241,087 | 56,550 | 152,500 | 3,031,553 |
| 1907 | 478,015 | 296,329 | 4,227,267 | 49,389 | 154,943 | 3,573,163 |
| 1908 | 430,010 | 237,636 | 4,224,865 | 35,576 | 122,416 | 3,584,106 |
| 1909 | 343,582 | 197,633 | 4,361,395 | 25,326 | 129,614 | 3,287,418 |
| 1910 | 475,536 | 265,530 | 4,040,425 | 27,483 | 101,860 | 3,719,155 |
| 1911 | 304,099 | 255,764 | 4,279,386 | 23,999 | 89,925 | 3,766,002 |
| 1912 | 429,555 | 271,626 | 4,913,050 | 23,612 | 96,898 | 3,454,536 |
| 1913 | 411,003 | 279,732 | 5,208,682 | 28,926 | 93,236 | 3,890,639 |
| 1914 | 389,386 | 210,778 | 4,987,281 | 25,685 | 80,991 | 3,678,509 |
| 1915 | 338,847 | 157,675 | 4,849,352 | 22,204 | 60,142 | 3,437,469 |
| 1916 | 401,460 | 173,530 | 5,259,866 | 21,831 | 83,775 | 3,768,430 |
| 1917 | 596,511 | 259,004 | 6,590,825 | 17,603 | 89,412 | 5,044,261 |
| 1918 | 539,094 | 343,162 | 7,095,366 | 18,174 | 93,795 | 5,188,768 |
| 1919 | 331,057 | 267,614 | 6,104,287 | 13,922 | 46,200 | 3,929,544 |
| 1920 | 395,100 | 218,820 | 6,887,547 | 18,632 | 43,357 | 3,882,620 |
| 1921 | 344,828 | 240,946 | 7,521,432 | 13,685 | 29,121 | 4,226,530 |
| 1922 | 332,444 | 201,326 | 5,444,507 | 20,030 | 29,505 | 3,118,419 |
| 1923 | 297,948 | 253,260 | 6,829,113 | 25,964 | 36,285 | 4,037,333 |
| 1924 | 308,364 | 183,310 | 6,056,867 | 21,366 | 25,440 | 3,445,893 |
| 1925 | 283,774 | 145,064 | 6,213,109 | 17,271 | 16,431 | 3,100,494 |
| 1925 ^a | 24,708 | 83,697 | 3,026,752 | 9,343 | 15,179 | 1,888,156 |
| 1926 | 222,351 | 154,133 | 6,291,897 | 18,372 | 22,480 | 3,531,760 |
| 1927 | 150,617 | 128,220 | 3,306,496 | 15,866 | 16,866 | 2,261,549 |
| 1928 | 146,473 | 127,208 | 4,639,228 | 11,185 | 8,951 | 2,274,787 |
| 1929 | 137,234 | 130,159 | 5,075,087 | 9,054 | | 2,749,319 |
| 1930 | 130,350 | 99,671 | 4,646,527 | 8,867 | | 2,229,592 |
| 1931 | 114,519 | 82,274 | 3,992,552 | 11,836 | | 1,157,124 |
| 1932 | 94,504 | 77,938 | 1,938,522 | 27,357 | | 990,250 |
| 1933 | 28,122 | 146,523 | 3,048,648 | 14,775 | | 1,329,026 |
| 1934 | | 164,401 | 3,372,601 | 10,072 | | 1,616,665 |
| 1935 | | 174,859 | 3,686,810 | 8,062 | | 1,697,334 |
| 1936 | | 162,283 | 4,256,966 | 10,628 | | 1,837,716 |
| 1937 | 2,969 | 145,289 | 3,520,886 | 6,482 | | 1,658,632 |
| 1938 | 15,674 | 122,328 | 3,301,013 | 4,790 | | 1,371,709 |
| 1939 | 28,934 | 89,846 | 3,441,592 | 6,291 | | 1,877,060 |
| 1940 | 11,810 | 105,686 | 3,787,844 | 7,564 | | 1,760,381 |
| 1941 | 28,177 | 53,183 | 4,352,325 | 9,999 | | 1,891,649 |
| 1942 | 48,962 | 7,474 | 4,860,896 | 9,221 | | 2,083,480 |
| 1943 | 46,500 | 46,241 | 5,580,641 | 2,506 | | 2,279,665 |
| 1944 | 52,338 | 38,167 | 5,518,050 | 773 | | 2,114,632 |
| 1945 | 60,852 | 29,683 | 5,328,029 | 598 | | 2,129,748 |
| 1946 | 51,822 | 21,769 | 4,985,062 | 938 | | 2,140,014 |
| 1947 | 53,658 | 1,539 | 5,037,173 | 1,260 | | 2,218,667 |
| Total | 13,934,849 | 11,000,468 | 243,988,145 | 2,634,288 | 5,544,139 | 147,409,358 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Marion | Marshall | Menard | Mercer | Montgomery | Monroe |
|-------------------------|------------|------------|------------|------------|------------|--------|
| 1882..... | 101,000 | 5,450 | 95,998 | 100,860 | 42,400 | ..... |
| 1883..... | 120,000 | 6,640 | 134,275 | 144,434 | 25,000 | ..... |
| 1884..... | 109,000 | 21,576 | 151,749 | 118,513 | 10,717 | ..... |
| 1885..... | 130,101 | 44,272 | 139,120 | 109,417 | 8,957 | ..... |
| 1886..... | 109,434 | 66,174 | 155,621 | 103,329 | 8,666 | ..... |
| 1887..... | 98,915 | 73,128 | 127,464 | 127,708 | 10,220 | ..... |
| 1888..... | 156,975 | 87,013 | 181,075 | 167,931 | 14,295 | ..... |
| 1889..... | 180,777 | 59,784 | 181,621 | 175,690 | 24,425 | ..... |
| 1890..... | 218,499 | 56,574 | 230,662 | 238,290 | 58,617 | ..... |
| 1891..... | 321,652 | 65,219 | 204,583 | 314,360 | 107,190 | ..... |
| 1892..... | 376,519 | 78,576 | 285,695 | 328,542 | 147,870 | ..... |
| 1893..... | 480,529 | 92,144 | 281,635 | 363,206 | 175,712 | ..... |
| 1894..... | 478,757 | 134,696 | 295,852 | 374,003 | 178,002 | ..... |
| 1895..... | 538,900 | 346,281 | 277,738 | 462,011 | 197,842 | ..... |
| 1896..... | 643,561 | 389,429 | 347,345 | 450,071 | 171,099 | ..... |
| 1897..... | 626,850 | 339,820 | 328,920 | 425,518 | 251,249 | ..... |
| 1898..... | 714,513 | 286,365 | 314,160 | 384,345 | 294,667 | ..... |
| 1899..... | 494,117 | 342,578 | 427,939 | 496,591 | 354,201 | ..... |
| 1900..... | 840,814 | 369,148 | 397,276 | 501,065 | 389,822 | ..... |
| 1901..... | 829,326 | 386,334 | 393,777 | 563,603 | 328,251 | ..... |
| 1902..... | 881,821 | 441,643 | 438,768 | 602,722 | 419,810 | ..... |
| 1903..... | 1,002,047 | 465,079 | 492,328 | 648,070 | 420,312 | ..... |
| 1904..... | 1,083,734 | 476,239 | 543,763 | 601,508 | 494,501 | ..... |
| 1905..... | 1,086,350 | 510,968 | 448,433 | 544,220 | 468,198 | ..... |
| 1906..... | 826,280 | 437,230 | 536,273 | 448,088 | 649,839 | ..... |
| 1907..... | 1,084,783 | 471,725 | 403,896 | 458,472 | 1,078,336 | ..... |
| 1908..... | 954,925 | 423,029 | 397,526 | 419,448 | 1,382,368 | ..... |
| 1909..... | 1,096,847 | 421,552 | 278,058 | 396,087 | 1,480,635 | ..... |
| 1910..... | 1,065,268 | 372,446 | 338,708 | 302,132 | 1,811,203 | ..... |
| 1911..... | 1,134,377 | 311,921 | 258,408 | 261,355 | 2,189,078 | ..... |
| 1912..... | 1,203,947 | 447,094 | 220,418 | 334,662 | 2,280,341 | ..... |
| 1913..... | 1,188,551 | 468,600 | 169,149 | 421,593 | 2,418,329 | ..... |
| 1914..... | 952,868 | 403,150 | 142,127 | 412,509 | 2,578,680 | ..... |
| 1915..... | 961,037 | 390,408 | 43,039 | 372,254 | 2,719,138 | ..... |
| 1916..... | 900,483 | 437,960 | 163,190 | 354,009 | 3,123,882 | ..... |
| 1917..... | 1,088,619 | 472,690 | 197,283 | 264,452 | 3,641,676 | ..... |
| 1918..... | 1,116,289 | 393,134 | 227,032 | 314,422 | 4,340,675 | ..... |
| 1919..... | 906,871 | 248,153 | 165,933 | 235,668 | 2,971,796 | ..... |
| 1920..... | 869,886 | 305,012 | 145,868 | 206,935 | 3,006,491 | ..... |
| 1921..... | 841,989 | 259,240 | 159,394 | 229,753 | 3,239,718 | ..... |
| 1922..... | 687,732 | 214,544 | 131,386 | 163,599 | 2,078,948 | ..... |
| 1923..... | 736,346 | 357,712 | 128,222 | 123,231 | 2,678,017 | ..... |
| 1924..... | 541,820 | 302,330 | 61,001 | 173,938 | 2,535,625 | ..... |
| 1925..... | 298,911 | 36,972 | 59,468 | 111,623 | 2,156,726 | ..... |
| 1925 ^a | 256,031 | 9,294 | 39,434 | 44,523 | 978,245 | ..... |
| 1926..... | 560,512 | 7,678 | 56,387 | 93,672 | 1,865,294 | 541 |
| 1927..... | 755,032 | 20,127 | 80,249 | 72,599 | 1,034,245 | 553 |
| 1928..... | 550,177 | 19,693 | 80,547 | 30,159 | 1,411,345 | 77 |
| 1929..... | 537,703 | 13,205 | 83,445 | 27,936 | 1,866,886 | ..... |
| 1930..... | 376,799 | 7,796 | 99,573 | 23,744 | 1,599,246 | ..... |
| 1931..... | 360,576 | 6,128 | 89,215 | 21,796 | 1,255,432 | ..... |
| 1932..... | 373,945 | 11,640 | 96,007 | 32,403 | 626,674 | 4,232 |
| 1933..... | 395,255 | 13,623 | 79,354 | 41,154 | 659,084 | 505 |
| 1934..... | 292,762 | 12,722 | 105,972 | 40,354 | 549,671 | 444 |
| 1935..... | 342,156 | 12,046 | 136,184 | 34,294 | 540,929 | 602 |
| 1936..... | 398,701 | 10,391 | 134,759 | 36,946 | 600,496 | 400 |
| 1937..... | 317,542 | 11,200 | 143,649 | 27,925 | 928,598 | 300 |
| 1938..... | 186,223 | 5,979 | 116,605 | 21,938 | 634,963 | 206 |
| 1939..... | 182,030 | 5,502 | 115,647 | 26,947 | 723,008 | 120 |
| 1940..... | 158,923 | 7,445 | 137,842 | 21,760 | 782,927 | 182 |
| 1941..... | 186,147 | 6,763 | 125,553 | 19,695 | 799,247 | 122 |
| 1942..... | 223,999 | 4,223 | 109,527 | 14,883 | 900,159 | ..... |
| 1943..... | 285,768 | 3,813 | 80,091 | 6,666 | 980,254 | ..... |
| 1944..... | 302,274 | 1,853 | 46,791 | 1,377 | 982,346 | ..... |
| 1945..... | 169,460 | 793 | 52,916 | 1,472 | 949,517 | ..... |
| 1946..... | 177,335 | 461 | 42,831 | 1,263 | 842,210 | ..... |
| 1947..... | 265,006 | 98 | 34,489 | 445 | 923,812 | ..... |
| Total..... | 37,736,376 | 12,512,505 | 13,189,243 | 14,994,188 | 75,398,150 | 8,284 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Morgan | Moultrie | Peoria | Perry | Pike | Pope |
|-------------------|---------|-----------|------------|-------------|-------|-------|
| 1882 | 13,500 | | 419,087 | 276,845 | | |
| 1883 | 600 | | 515,458 | 299,305 | | |
| 1884 | 2,500 | | 452,078 | 255,868 | | |
| 1885 | 8,500 | | 515,675 | 259,375 | | |
| 1886 | 6,253 | | 386,852 | 319,552 | | |
| 1887 | 6,669 | | 452,133 | 213,112 | | |
| 1888 | 12,545 | | 533,817 | 306,235 | | |
| 1889 | 13,019 | | 454,731 | 381,347 | | |
| 1890 | 16,601 | | 482,725 | 497,768 | 135 | |
| 1891 | 7,610 | | 564,119 | 604,152 | | |
| 1892 | 4,266 | | 632,939 | 461,068 | | |
| 1893 | 2,142 | | 620,149 | 860,151 | | |
| 1894 | 1,088 | | 611,792 | 530,490 | | |
| 1895 | 1,560 | | 437,457 | 587,444 | | |
| 1896 | | | 457,061 | 726,507 | | |
| 1897 | | | 504,309 | 689,921 | | |
| 1898 | 1,800 | | 640,193 | 845,329 | | |
| 1899 | 4,800 | | 744,698 | 879,422 | | |
| 1900 | 4,010 | | 727,737 | 680,653 | | |
| 1901 | 3,047 | | 710,582 | 664,278 | | |
| 1902 | 3,310 | | 824,260 | 789,625 | | |
| 1903 | 3,840 | | 920,716 | 1,031,751 | | |
| 1904 | 4,300 | | 939,737 | 1,240,174 | | |
| 1905 | 4,702 | | 904,892 | 1,268,718 | | |
| 1906 | 3,048 | | 844,484 | 1,443,926 | | |
| 1907 | 2,698 | | 1,027,123 | 1,743,922 | | |
| 1908 | 7,490 | | 1,054,673 | 1,610,411 | | |
| 1909 | 1,445 | 4,800 | 821,349 | 1,536,903 | | |
| 1910 | 1,708 | 5,520 | 924,873 | 1,390,436 | | |
| 1911 | 1,515 | 11,573 | 964,698 | 1,451,080 | | |
| 1912 | 1,085 | 54,162 | 1,207,723 | 1,406,317 | | |
| 1913 | 956 | 105,280 | 1,244,924 | 1,643,043 | | |
| 1914 | 1,380 | 121,352 | 1,167,006 | 2,052,148 | | |
| 1915 | 855 | 174,775 | 1,100,749 | 2,173,834 | | |
| 1916 | 1,535 | 180,040 | 1,319,551 | 2,509,016 | | |
| 1917 | 1,000 | 239,818 | 1,553,455 | 2,477,561 | | |
| 1918 | 1,544 | 244,791 | 1,483,486 | 2,937,237 | | |
| 1919 | 2,604 | 174,050 | 1,039,127 | 2,696,984 | | |
| 1920 | 1,200 | 165,359 | 1,244,013 | 2,408,900 | | |
| 1921 | 350 | 149,436 | 1,271,713 | 2,570,264 | | |
| 1922 | 860 | 152,436 | 1,165,923 | 2,071,447 | | |
| 1923 | 400 | 142,568 | 1,495,812 | 2,129,025 | | |
| 1924 | 495 | 106,276 | 1,221,667 | 2,040,676 | | |
| 1925 | 1,900 | | 915,356 | 2,062,345 | | |
| 1925 ^a | 130 | | 544,931 | 1,334,631 | | |
| 1926 | 240 | | 1,164,312 | 2,327,290 | | |
| 1927 | 598 | | 945,495 | 1,641,691 | 140 | |
| 1928 | 1,729 | | 1,505,782 | 2,237,661 | 943 | 100 |
| 1929 | 720 | | 1,636,697 | 2,940,513 | 500 | 100 |
| 1930 | 300 | | 967,745 | 3,309,648 | | 150 |
| 1931 | 1,066 | | 1,214,567 | 2,990,440 | 1,130 | 250 |
| 1932 | 2,253 | | 748,358 | 3,086,528 | 2,160 | 50 |
| 1933 | 2,175 | | 1,443,261 | 2,602,398 | | 250 |
| 1934 | 765 | | 1,536,550 | 3,038,966 | | 200 |
| 1935 | 517 | | 1,532,648 | 3,330,250 | | 179 |
| 1936 | 500 | | 1,652,228 | 3,430,836 | | 117 |
| 1937 | 1,092 | | 1,485,717 | 3,873,355 | | 47 |
| 1938 | 1,350 | | 1,246,036 | 2,975,088 | | 119 |
| 1939 | 1,269 | | 1,180,653 | 3,172,299 | 64 | |
| 1940 | 1,075 | | 906,856 | 3,477,276 | | |
| 1941 | 527 | | 823,577 | 3,811,006 | | |
| 1942 | 134 | | 884,593 | 4,242,411 | 9 | |
| 1943 | 53 | | 812,412 | 4,203,721 | | |
| 1944 | | | 624,151 | 4,649,481 | | |
| 1945 | | | 643,734 | 4,374,370 | | |
| 1946 | | | 595,799 | 3,759,892 | | |
| 1947 | | | 670,667 | 5,017,972 | | |
| Total | 177,223 | 2,032,236 | 62,287,671 | 130,852,288 | 5,081 | 1,562 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Putnam | Randolph | Richland | Rock Island | St. Clair | Saline |
|-------------------|------------|------------|----------|-------------|-------------|-------------|
| 1882 | | 186,257 | | 131,081 | 865,685 | 348,320 |
| 1883 | | 68,560 | | 596,101 | 790,522 | 670,128 |
| 1884 | | 46,535 | | 104,643 | 1,067,270 | 95,967 |
| 1885 | | 61,124 | | 102,980 | 1,202,549 | 110,396 |
| 1886 | | 62,220 | | 87,713 | 1,018,149 | 69,921 |
| 1887 | | 74,263 | | 85,282 | 1,012,723 | 48,955 |
| 1888 | | 167,321 | | 57,872 | 1,184,579 | 32,550 |
| 1889 | | 98,202 | | 47,363 | 1,198,100 | 35,496 |
| 1890 | | 134,699 | 154 | 39,696 | 1,332,978 | 45,845 |
| 1891 | | 172,321 | | 41,540 | 1,595,839 | 54,269 |
| 1892 | | 168,979 | | 36,109 | 1,759,822 | 61,602 |
| 1893 | | 171,055 | | 34,308 | 2,133,870 | 36,436 |
| 1894 | | 193,247 | | 41,641 | 1,623,684 | 36,913 |
| 1895 | | 194,481 | | 45,585 | 1,479,106 | 45,202 |
| 1896 | | 202,838 | | 34,065 | 1,571,323 | 46,495 |
| 1897 | | 150,647 | | 35,651 | 1,718,194 | 51,689 |
| 1898 | | 274,072 | | 47,490 | 1,600,752 | 100,005 |
| 1899 | | 374,323 | | 41,597 | 1,849,474 | 94,148 |
| 1900 | | 447,430 | | 45,191 | 2,253,883 | 148,060 |
| 1901 | | 413,549 | | 63,399 | 2,518,847 | 148,701 |
| 1902 | | 400,802 | | 84,100 | 2,578,553 | 224,014 |
| 1903 | | 478,125 | | 85,700 | 3,134,679 | 354,172 |
| 1904 | | 620,280 | | 91,793 | 3,418,469 | 299,720 |
| 1905 | 42,964 | 506,547 | | 78,784 | 3,398,032 | 327,262 |
| 1906 | 135,004 | 581,841 | | 74,021 | 4,168,019 | 601,979 |
| 1907 | 268,710 | 742,894 | | 66,513 | 4,435,070 | 1,711,825 |
| 1908 | 403,136 | 777,327 | | 62,961 | 4,413,639 | 2,482,677 |
| 1909 | 561,804 | 757,622 | | 51,241 | 3,409,362 | 2,798,527 |
| 1910 | 470,132 | 846,969 | | 61,525 | 4,184,555 | 3,062,098 |
| 1911 | 585,135 | 1,005,447 | | 76,660 | 5,274,006 | 3,232,736 |
| 1912 | 716,531 | 762,816 | | 71,696 | 4,516,548 | 4,088,575 |
| 1913 | 752,729 | 712,058 | | 55,709 | 4,740,212 | 4,519,936 |
| 1914 | 660,499 | 898,405 | | 42,377 | 4,116,771 | 3,875,511 |
| 1915 | 624,713 | 875,124 | | 37,688 | 3,012,693 | 3,863,030 |
| 1916 | 648,802 | 924,480 | | 29,937 | 3,315,650 | 4,502,801 |
| 1917 | 712,535 | 1,162,468 | | 57,727 | 5,755,650 | 4,530,903 |
| 1918 | 637,257 | 1,599,718 | | 60,912 | 7,868,449 | 5,670,832 |
| 1919 | 523,326 | 1,383,944 | | 39,110 | 5,989,187 | 4,631,320 |
| 1920 | 499,671 | 1,278,283 | | 65,315 | 5,280,768 | 4,539,853 |
| 1921 | 423,104 | 1,927,475 | | 93,207 | 6,444,922 | 4,278,956 |
| 1922 | 179,261 | 1,593,231 | | 65,667 | 4,725,654 | 4,009,904 |
| 1923 | 394,960 | 1,640,474 | | 63,035 | 5,122,518 | 4,789,693 |
| 1924 | 344,138 | 1,457,277 | | 37,962 | 4,452,875 | 5,052,508 |
| 1925 | | 894,629 | | 31,476 | 2,900,369 | 4,338,377 |
| 1925 ^a | | 522,419 | | 13,984 | 1,664,086 | 2,365,986 |
| 1926 | | 1,013,687 | | 20,046 | 3,427,422 | 4,740,946 |
| 1927 | | 662,559 | | 32,455 | 3,083,070 | 3,173,201 |
| 1928 | | 638,584 | | 21,732 | 2,955,266 | 3,671,157 |
| 1929 | | 564,984 | | 18,670 | 2,803,441 | 4,132,043 |
| 1930 | 2,873 | 443,195 | | 17,345 | 2,447,784 | 3,670,144 |
| 1931 | 13,387 | 469,188 | | 34,774 | 2,778,643 | 2,973,465 |
| 1932 | 104,555 | 237,509 | | 47,775 | 2,166,309 | 2,429,707 |
| 1933 | 68,953 | 396,843 | | 67,887 | 2,431,681 | 2,502,688 |
| 1934 | 80,913 | 477,330 | | 78,298 | 2,508,219 | 2,734,233 |
| 1935 | 81,124 | 568,892 | | 74,226 | 2,496,287 | 3,179,930 |
| 1936 | 64,198 | 606,915 | | 62,137 | 2,942,549 | 3,710,074 |
| 1937 | 45,879 | 1,390,113 | | 45,261 | 2,697,626 | 3,497,557 |
| 1938 | 25,600 | 1,115,662 | | 30,380 | 2,274,746 | 3,148,078 |
| 1939 | | 1,272,614 | | 25,012 | 2,457,296 | 3,672,624 |
| 1940 | | 1,259,196 | | 15,844 | 3,230,007 | 3,895,631 |
| 1941 | | 1,693,416 | | 17,111 | 2,305,907 | 4,203,596 |
| 1942 | | 2,064,778 | | 10,448 | 2,688,548 | 4,455,859 |
| 1943 | | 2,519,267 | | 3,331 | 3,183,437 | 4,388,307 |
| 1944 | | 2,695,442 | | 1,941 | 3,115,438 | 4,504,148 |
| 1945 | | 2,808,523 | | 972 | 3,020,478 | 4,557,481 |
| 1946 | | 2,289,892 | | 1,061 | 3,062,582 | 4,233,318 |
| 1947 | | 2,660,827 | | 413 | 3,440,300 | 4,151,746 |
| Total | 10,071,893 | 55,862,194 | 154 | 3,845,526 | 199,615,119 | 164,055,226 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Sangamon | Schuyler | Scott | Shelby | Stark | Tazewell |
|-------------------|-------------|-----------|---------|-----------|-----------|------------|
| 1882 | 633,835 | 5,115 | 19,924 | 2,100 | 22,143 | 36,177 |
| 1883 | 861,620 | ..... | 18,806 | 8,184 | 15,340 | 109,378 |
| 1884 | 820,826 | 12,876 | 10,280 | 10,205 | 17,126 | 33,590 |
| 1885 | 649,729 | 7,082 | 9,950 | 10,181 | 19,455 | 23,780 |
| 1886 | 720,153 | 10,123 | 8,349 | 8,810 | 17,198 | 34,881 |
| 1887 | 730,391 | 23,686 | 9,802 | 7,952 | 17,865 | 51,847 |
| 1888 | 764,970 | 34,403 | 12,491 | 7,943 | 18,690 | 59,324 |
| 1889 | 846,012 | 16,243 | 15,028 | 7,010 | 19,171 | 67,973 |
| 1890 | 879,888 | 21,836 | 20,022 | 18,023 | 18,672 | 81,141 |
| 1891 | 1,051,604 | 20,122 | 14,755 | 14,197 | 20,157 | 107,252 |
| 1892 | 1,091,014 | 16,792 | 17,506 | 15,665 | 22,349 | 120,156 |
| 1893 | 1,410,346 | 18,735 | 22,757 | 13,460 | 23,070 | 128,957 |
| 1894 | 1,142,299 | 13,828 | 19,025 | 26,450 | 22,625 | 93,599 |
| 1895 | 1,318,092 | 12,600 | 17,730 | 63,726 | 22,131 | 94,106 |
| 1896 | 1,587,812 | 7,915 | 18,410 | 35,297 | 18,085 | 113,541 |
| 1897 | 1,838,453 | 7,841 | 25,125 | 69,329 | 19,472 | 86,639 |
| 1898 | 1,763,863 | 11,149 | 21,337 | 68,388 | 21,936 | 84,507 |
| 1899 | 2,083,572 | 11,132 | 20,617 | 105,765 | 23,997 | 112,018 |
| 1900 | 2,519,911 | 13,100 | 26,149 | 107,144 | 24,911 | 120,869 |
| 1901 | 2,919,223 | 14,690 | 27,486 | 116,100 | 26,524 | 161,609 |
| 1902 | 3,672,987 | 18,240 | 23,937 | 100,031 | 24,799 | 184,835 |
| 1903 | 4,386,526 | 15,734 | 23,370 | 108,149 | 39,406 | 185,535 |
| 1904 | 4,516,358 | 18,400 | 24,652 | 132,413 | 61,040 | 196,611 |
| 1905 | 4,395,050 | 21,470 | 14,876 | 121,212 | 38,431 | 235,001 |
| 1906 | 4,155,431 | 16,332 | 19,938 | 126,664 | 34,696 | 212,633 |
| 1907 | 4,876,621 | 17,222 | 21,364 | 143,308 | 25,480 | 216,901 |
| 1908 | 5,082,626 | 11,835 | 13,262 | 165,289 | 24,444 | 218,435 |
| 1909 | 5,334,148 | 17,372 | 5,757 | 164,095 | 20,234 | 197,536 |
| 1910 | 5,153,322 | 12,582 | 5,318 | 154,393 | 28,061 | 167,186 |
| 1911 | 4,716,406 | 1,892 | 5,553 | 92,281 | 31,330 | 196,090 |
| 1912 | 5,488,419 | 2,736 | 3,760 | 128,544 | 32,746 | 239,424 |
| 1913 | 5,789,446 | 6,198 | 2,654 | 202,968 | 21,974 | 294,390 |
| 1914 | 5,804,239 | 8,131 | 2,860 | 209,148 | 18,897 | 331,501 |
| 1915 | 5,448,618 | 14,049 | 5,391 | 160,162 | 19,645 | 323,632 |
| 1916 | 4,869,981 | 16,596 | 4,657 | 82,650 | 13,531 | 310,082 |
| 1917 | 6,948,648 | 24,154 | 2,940 | 95,682 | 18,257 | 455,880 |
| 1918 | 8,155,734 | 19,432 | 4,274 | 198,149 | 15,870 | 554,922 |
| 1919 | 6,663,877 | 17,625 | 3,048 | 60,317 | 14,128 | 614,188 |
| 1920 | 6,844,049 | 17,737 | 2,324 | 83,245 | 11,932 | 721,288 |
| 1921 | 6,952,126 | 17,544 | 1,439 | 88,095 | 14,576 | 762,763 |
| 1922 | 5,833,494 | 30,977 | 6,073 | 67,740 | 13,514 | 669,721 |
| 1923 | 6,798,804 | 25,636 | 5,120 | 60,855 | 18,987 | 742,725 |
| 1924 | 6,969,120 | 29,051 | 4,765 | 43,842 | 11,658 | 775,348 |
| 1925 | 5,471,826 | 23,054 | 4,250 | 82,581 | 14,264 | 644,688 |
| 1925 ^a | 3,154,174 | 11,148 | 2,312 | 50,480 | 6,044 | 179,471 |
| 1926 | 5,476,167 | 17,510 | 3,053 | 65,532 | 6,976 | 361,468 |
| 1927 | 3,119,517 | 21,652 | 1,696 | 41,060 | 10,253 | 435,454 |
| 1928 | 3,739,423 | 23,871 | 2,113 | 32,664 | 8,512 | 577,262 |
| 1929 | 4,275,675 | 23,189 | 2,929 | 43,296 | 12,197 | 509,480 |
| 1930 | 3,700,419 | 25,864 | 1,408 | 50,100 | 14,051 | 437,791 |
| 1931 | 3,352,211 | 35,568 | 1,609 | 37,372 | 8,754 | 343,221 |
| 1932 | 1,821,826 | 34,037 | 4,492 | 53,657 | 12,082 | 395,611 |
| 1933 | 2,081,211 | 32,811 | 1,317 | 18,246 | 15,801 | 325,668 |
| 1934 | 2,343,288 | 50,897 | 4,955 | 30,213 | 20,842 | 328,142 |
| 1935 | 2,518,608 | 72,514 | 5,382 | 27,073 | 18,180 | 286,822 |
| 1936 | 2,870,954 | 84,731 | 3,345 | 19,324 | 19,235 | 303,609 |
| 1937 | 2,594,104 | 73,673 | 2,119 | 12,205 | 20,783 | 282,621 |
| 1938 | 1,916,707 | 55,232 | 1,745 | 11,300 | 18,437 | 219,699 |
| 1939 | 2,067,306 | 59,340 | 4,162 | 10,007 | 17,258 | 207,633 |
| 1940 | 2,222,632 | 70,880 | 2,086 | 10,686 | 15,860 | 144,949 |
| 1941 | 2,646,998 | 113,603 | 441 | 9,876 | 10,631 | 123,598 |
| 1942 | 3,290,263 | 143,353 | 181 | 6,479 | 7,665 | 134,195 |
| 1943 | 3,290,783 | 243,505 | ..... | 1,162 | 2,784 | 129,284 |
| 1944 | 2,911,012 | 257,116 | ..... | ..... | 809 | 128,223 |
| 1945 | 2,498,072 | 202,515 | ..... | 330 | 243 | 115,217 |
| 1946 | 2,132,845 | 148,015 | ..... | 546 | 150 | 79,678 |
| 1947 | 2,258,105 | 120,751 | ..... | 200 | 18 | 92,361 |
| Total | 226,243,772 | 2,605,042 | 612,476 | 4,119,550 | 1,226,382 | 17,314,116 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Continued)
1882-1947

| Year | Vermilion | Wabash | Warren | Washington | White | Will |
|-------------------|-------------|---------|---------|------------|-----------|------------|
| 1882 | 343,443 | | 23,376 | 4,000 | | 649,400 |
| 1883 | 416,339 | | 15,530 | 45,000 | | 699,427 |
| 1884 | 620,808 | | 17,224 | 45,415 | | 465,657 |
| 1885 | 423,860 | | 15,349 | 47,522 | | 367,455 |
| 1886 | 305,679 | | 13,810 | 50,072 | | 287,512 |
| 1887 | 359,119 | | 13,636 | 40,220 | | 284,040 |
| 1888 | 499,076 | | 15,518 | 43,600 | | 347,105 |
| 1889 | 537,411 | | 12,149 | 36,200 | | 342,372 |
| 1890 | 704,509 | | 14,095 | 25,160 | | 288,131 |
| 1891 | 880,466 | | 12,372 | 68,200 | | 233,603 |
| 1892 | 972,589 | | 11,364 | 62,966 | | 113,846 |
| 1893 | 996,768 | | 11,876 | 72,200 | | 81,725 |
| 1894 | 989,813 | | 11,041 | 49,835 | | 20,717 |
| 1895 | 1,177,375 | | 14,191 | 56,220 | | 38,675 |
| 1896 | 1,822,344 | | 12,696 | 33,360 | | 86,950 |
| 1897 | 2,000,623 | | 10,099 | 25,715 | | 25,682 |
| 1898 | 1,520,699 | | 12,245 | 43,808 | | 40,904 |
| 1899 | 2,221,867 | | 14,080 | 34,460 | | 32,779 |
| 1900 | 2,030,954 | | 15,089 | 49,259 | | 50,932 |
| 1901 | 2,003,780 | 3,792 | 19,600 | 35,838 | | 59,976 |
| 1902 | 2,551,638 | 5,120 | 15,534 | 32,942 | | 51,686 |
| 1903 | 2,893,233 | 4,800 | 13,986 | 57,956 | | 35,616 |
| 1904 | 3,114,060 | | 17,454 | 19,930 | | 68,096 |
| 1905 | 2,618,375 | | 17,486 | 78,315 | 1,000 | 128,751 |
| 1906 | 2,012,835 | | 16,214 | 95,796 | 6,585 | 141,959 |
| 1907 | 3,019,934 | | 14,110 | 68,768 | 7,243 | 188,338 |
| 1908 | 2,659,762 | | 11,446 | 75,548 | 19,480 | 161,014 |
| 1909 | 2,221,634 | | 14,612 | 48,116 | 21,210 | 182,612 |
| 1910 | 2,033,467 | | 10,670 | 24,827 | 23,780 | 140,583 |
| 1911 | 3,270,380 | | 12,631 | 20,387 | 29,271 | 164,325 |
| 1912 | 3,374,443 | | 8,498 | 189,883 | 31,774 | 179,001 |
| 1913 | 3,510,661 | | 7,643 | 243,932 | 19,246 | 153,301 |
| 1914 | 2,983,591 | | 6,654 | 517,784 | 31,725 | 135,752 |
| 1915 | 2,061,535 | | 5,908 | 458,692 | 33,964 | 127,487 |
| 1916 | 2,608,815 | | 5,440 | 606,214 | 27,151 | 128,844 |
| 1917 | 3,299,419 | | 7,941 | 759,999 | 105,645 | 85,072 |
| 1918 | 3,971,330 | 250 | 5,749 | 807,509 | 172,501 | 77,269 |
| 1919 | 3,299,446 | 350 | 3,735 | 695,842 | 125,139 | 45,331 |
| 1920 | 3,248,946 | 200 | 3,886 | 667,973 | 135,199 | 35,493 |
| 1921 | 3,371,737 | 400 | 5,019 | 850,470 | 199,863 | 19,968 |
| 1922 | 3,011,164 | 500 | 6,135 | 715,742 | 81,007 | 18,144 |
| 1923 | 3,879,391 | 6,740 | 10,312 | 566,369 | 111,319 | 9,284 |
| 1924 | 3,761,496 | 1,700 | 11,319 | 331,174 | 66,744 | 5,046 |
| 1925 | 3,547,184 | 11,800 | 7,540 | 41,784 | 12,998 | 8,016 |
| 1925 ^a | 1,655,831 | 2,530 | 2,561 | 12,448 | 10,527 | 9,342 |
| 1926 | 3,147,825 | 5,485 | 4,372 | 169,233 | 15,392 | 18,807 |
| 1927 | 2,741,682 | 5,607 | 6,071 | 302,636 | 56,191 | 15,672 |
| 1928 | 3,353,548 | 4,552 | 9,359 | 501,932 | 57,558 | 234,920 |
| 1929 | 3,053,187 | 6,232 | 5,297 | 525,632 | 34,841 | 701,280 |
| 1930 | 2,930,924 | 6,602 | 5,482 | 531,304 | 25,423 | 865,666 |
| 1931 | 2,540,023 | 6,608 | 4,672 | 384,350 | 8,608 | 988,500 |
| 1932 | 1,928,377 | 10,117 | 6,977 | 340,327 | 27,747 | 976,178 |
| 1933 | 2,064,328 | 13,370 | 7,791 | 264,656 | 26,483 | 982,016 |
| 1934 | 1,945,425 | 14,212 | 8,677 | 320,942 | 31,006 | 968,951 |
| 1935 | 2,000,873 | 15,969 | 7,483 | 379,032 | 52,489 | 1,068,581 |
| 1936 | 2,328,726 | 12,440 | 8,792 | 348,400 | 23,040 | 1,483,026 |
| 1937 | 2,274,403 | 9,419 | 10,418 | 335,717 | 33,857 | 1,393,077 |
| 1938 | 1,584,437 | 10,636 | 8,491 | 256,726 | 6,723 | 1,323,386 |
| 1939 | 1,941,196 | 10,075 | 6,587 | 271,953 | 2,264 | 1,226,826 |
| 1940 | 2,165,696 | 6,067 | 5,400 | 293,427 | 1,748 | 1,347,259 |
| 1941 | 2,160,165 | 5,499 | 7,126 | 249,374 | | 1,285,823 |
| 1942 | 2,319,162 | 4,049 | 12,346 | 361,773 | | 1,283,193 |
| 1943 | 2,462,645 | 1,023 | 5,735 | 473,105 | | 1,545,864 |
| 1944 | 2,443,182 | | 4,313 | 535,359 | | 1,779,552 |
| 1945 | 2,216,046 | | 3,418 | 554,082 | | 1,735,678 |
| 1946 | 1,344,823 | | 2,908 | 482,153 | | 1,416,726 |
| 1947 | 660,026 | | 2,339 | 352,548 | | 1,707,956 |
| Total | 144,414,528 | 186,144 | 671,877 | 17,095,131 | 1,676,741 | 32,166,155 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 14.—ANNUAL COAL PRODUCTION IN ILLINOIS BY COUNTIES—(Concluded)
1882-1947

| Year | Williamson | Woodford | State totals |
|-------------------------|-------------|-----------|---------------|
| 1882..... | 351,777 | 90,000 | 9,363,438 |
| 1883..... | 144,800 | 104,000 | 10,908,797 |
| 1884..... | 127,615 | 129,000 | 10,101,504 |
| 1885..... | 76,208 | 119,740 | 9,791,874 |
| 1886..... | 116,049 | 121,200 | 9,455,331 |
| 1887..... | 112,338 | 122,445 | 10,109,588 |
| 1888..... | 160,664 | 158,500 | 11,855,188 |
| 1889..... | 202,261 | 169,600 | 11,597,964 |
| 1890..... | 166,335 | 129,724 | 12,638,212 |
| 1891..... | 206,452 | 140,820 | 15,660,187 |
| 1892..... | 322,486 | 158,041 | 17,861,974 |
| 1893..... | 418,426 | 180,131 | 19,949,144 |
| 1894..... | 437,157 | 156,665 | 17,109,016 |
| 1895..... | 461,475 | 131,557 | 17,729,624 |
| 1896..... | 444,406 | 162,790 | 19,786,402 |
| 1897..... | 669,480 | 148,829 | 20,072,728 |
| 1898..... | 915,108 | 145,840 | 18,599,299 |
| 1899..... | 1,078,755 | 174,750 | 23,434,445 |
| 1900..... | 1,133,607 | 196,289 | 25,153,929 |
| 1901..... | 1,605,960 | 135,578 | 26,635,319 |
| 1902..... | 2,013,692 | 107,584 | 30,021,300 |
| 1903..... | 2,711,767 | 119,679 | 34,955,400 |
| 1904..... | 3,038,466 | 115,128 | 37,077,897 |
| 1905..... | 3,815,751 | 118,679 | 37,183,374 |
| 1906..... | 3,927,189 | 136,574 | 38,317,581 |
| 1907..... | 5,266,452 | 150,743 | 47,798,621 |
| 1908..... | 5,367,140 | 163,140 | 49,272,452 |
| 1909..... | 5,901,815 | 184,964 | 49,163,135 |
| 1910..... | 5,908,544 | 170,235 | 48,717,853 |
| 1911..... | 5,212,749 | 135,390 | 50,165,103 |
| 1912..... | 7,086,554 | 183,896 | 57,514,240 |
| 1913..... | 7,709,110 | 179,495 | 61,846,204 |
| 1914..... | 7,710,740 | 167,870 | 60,715,795 |
| 1915..... | 7,216,188 | 169,797 | 57,601,694 |
| 1916..... | 7,904,528 | 185,083 | 63,673,520 |
| 1917..... | 9,666,302 | 201,598 | 78,983,524 |
| 1918..... | 11,655,101 | 163,651 | 89,979,469 |
| 1919..... | 10,052,578 | 123,921 | 75,099,730 |
| 1920..... | 9,631,386 | 121,306 | 73,920,653 |
| 1921..... | 10,822,566 | 103,307 | 80,121,948 |
| 1922..... | 8,735,964 | 104,717 | 62,947,336 |
| 1923..... | 9,694,072 | 101,321 | 75,514,095 |
| 1924..... | 9,474,292 | 99,261 | 72,308,665 |
| 1925..... | 8,941,166 | 103,538 | 66,160,085 |
| 1925 ^a | 4,491,850 | 55,237 | 36,973,590 |
| 1926..... | 8,198,354 | 99,597 | 69,813,255 |
| 1927..... | 5,041,593 | 76,665 | 46,947,700 |
| 1928..... | 5,181,894 | 68,640 | 56,211,082 |
| 1929..... | 5,274,804 | 201,569 | 61,264,993 |
| 1930..... | 4,107,573 | 68,925 | 54,035,116 |
| 1931..... | 2,165,819 | 48,447 | 45,152,623 |
| 1932..... | 1,933,638 | 67,387 | 34,122,786 |
| 1933..... | 2,036,247 | 98,082 | 38,320,250 |
| 1934..... | 2,090,090 | 103,260 | 41,724,043 |
| 1935..... | 2,995,624 | 96,727 | 45,013,278 |
| 1936..... | 2,992,988 | 82,663 | 51,475,899 |
| 1937..... | 2,818,989 | 72,984 | 52,432,255 |
| 1938..... | 2,159,324 | 56,168 | 42,390,312 |
| 1939..... | 2,455,496 | 54,082 | 47,627,454 |
| 1940..... | 2,751,451 | 51,178 | 51,905,814 |
| 1941..... | 2,677,576 | 40,304 | 55,365,835 |
| 1942..... | 3,416,809 | 39,334 | 65,746,204 |
| 1943..... | 4,053,190 | 30,087 | 73,344,761 |
| 1944..... | 4,639,677 | 21,322 | 77,400,031 |
| 1945..... | 4,393,362 | 21,198 | 73,446,930 |
| 1946..... | 4,133,819 | 15,891 | 63,767,082 |
| 1947..... | 5,070,682 | 12,476 | 68,325,241 |
| Total..... | 263,696,320 | 7,768,599 | 2,969,680,171 |

^a July-December. Previous figures for fiscal years ending with June 30 of year listed. After 1925 for calendar years as listed.

TABLE 15.—GROWTH OF STRIP MINING IN ILLINOIS, 1915-1946^a

| Year | Production in thousands of tons | | | Percent of total produced by strip methods |
|------------|---------------------------------|-------------------|-----------------|--------------------------------------------|
| | Strip mines | Underground mines | Total all mines | |
| 1915..... | 195,486 | 55,977,080 | 56,172,566 | 0.3 |
| 1920..... | 367,009 | 72,042,601 | 72,409,610 | 0.5 |
| 1925*..... | 4,722,597 | 95,289,702 | 100,012,299 | 4.7 |
| 1930..... | 6,220,336 | 45,776,272 | 51,996,608 | 11.9 |
| 1935..... | 7,088,104 | 34,322,310 | 41,410,414 | 17.1 |
| 1940..... | 12,024,635 | 34,047,171 | 46,071,806 | 26.1 |
| 1941..... | 13,367,089 | 37,666,230 | 51,033,319 | 26.2 |
| 1942..... | 15,937,681 | 45,186,947 | 61,124,628 | 26.1 |
| 1943..... | 15,484,712 | 53,486,909 | 68,971,621 | 22.4 |
| 1944..... | 17,108,528 | 56,850,395 | 73,958,923 | 23.1 |
| 1945..... | 16,203,763 | 54,118,538 | 70,322,301 | 23.0 |
| 1946..... | 14,302,739 | 46,630,046 | 60,932,785 | 23.5 |

* From July 1, 1924 to December 31, 1925.

^a Source: Illinois State Dept. of Mines and Minerals.TABLE 16.—COAL MINE PRICES PER TON, DECEMBER 1946 AND DECEMBER 1947^a

| | December 1946 | | December 1947 | |
|---------------------------------------------------|------------------|---------|------------------|--------|
| Southern Illinois | | | | |
| Freight rate ^b to Chicago \$2.40 a ton | | | | |
| Lump..... | \$ | 3.65 | \$4.60 | — 4.75 |
| Egg..... | | 3.65 | 4.60 | — 4.75 |
| Nut..... | 2.89 | — 3.35 | 4.30 | — 4.40 |
| Washed screenings..... | | 2.90 | 4.50 | — 4.60 |
| Screenings..... | | 2.60 | 3.75 | — 3.95 |
| Domestic nut..... | | — | | 4.50 |
| Central Illinois | | | | |
| Freight rate to Chicago \$2.10 a ton | | | | |
| Lump..... | 2.80 | — 3.00 | 4.25 | — 4.60 |
| Egg..... | 2.80 | — 3.00 | 4.25 | — 4.45 |
| Nut..... | 2.70 | — 2.90 | 4.10 | — 4.35 |
| Washed screenings..... | | 2.55 | 4.50 | — 4.70 |
| Screenings..... | 2.15 | — 2.70 | 3.35 | — 3.65 |
| Domestic nut..... | | — | | 3.85 |
| Mine run..... | | — | 3.70 | — 4.05 |
| Indiana No. 4 | | | | |
| Freight rate to Chicago \$2.10 a ton | | | | |
| Lump..... | 3.05 | — 3.30 | 4.25 | — 4.60 |
| Egg..... | 2.95 | — 3.20 | 4.25 | — 4.60 |
| Nut..... | 2.30 | — 2.75 | 4.00 | — 4.25 |
| Screenings..... | 2.20 | — 2.40 | 3.50 | — 3.75 |
| Stoker..... (Stoker nut | 2.30 | — 2.75) | 4.60 | — 4.75 |
| Indiana No. 5 | | | | |
| Freight rate to Chicago \$2.35 a ton | | | | |
| Lump..... | 2.90 | — 3.35 | 4.25 | — 4.60 |
| Egg..... | 2.80 | — 2.95 | 4.25 | — 4.50 |
| Nut..... | 2.70 | — 2.90 | 4.00 | — 4.10 |
| Screenings..... | 2.10 | — 2.25 | 3.75 | — 3.85 |
| Stoker..... (Stoker nut | 2.65 | — 2.80) | — | — |
| West Virginia Smokeless, New River and Pocahontas | | | | |
| Freight rate to Chicago \$3.79 a ton | | | | |
| Lump..... | 4.79 | — 5.23 | 6.80 | — 7.00 |
| Egg..... | 4.89 | — 5.33 | 6.90 | — 7.00 |
| Stove..... | | 4.94 | | 7.00 |
| Nut..... | | 4.43 | | 6.50 |
| Stoker..... (Stoker pea | 4.29 | — 4.33) | | 6.65 |
| Mine run (Domestic)..... | | 4.68 | | 6.60 |
| Mine run..... | | 4.64 | | 6.75 |
| Slack..... | | 4.08 | | 5.35 |

COKE IN ILLINOIS

Blast furnaces in Illinois and Indiana depend almost altogether for their supply of coke upon coal shipped in from the Appalachian coal districts in West Virginia, eastern Kentucky, and Virginia. Increasing quantities of coal for coking purposes are being shipped from Illinois coal fields to

coke ovens in Illinois and Indiana. Table 19 indicates the amount of Illinois coal supplied to Illinois and Indiana coke plants during the last decade. Table 20 gives the production of coke and byproducts in Illinois coke ovens for the years 1944 to 1947 inclusive. The regional production of coke in the United States for the year 1947 is given in table 21.

TABLE 16.—COAL MINE PRICES PER TON, DECEMBER 1946 AND DECEMBER 1947^a—(Concluded)

| | December 1946 | | December 1947 | |
|--------------------------------------------|------------------|---------|------------------|--------|
| Eastern Kentucky Millers Creek-Great Heart | | | | |
| Freight rate to Chicago \$3.59 a ton | | | | |
| Block..... | \$ | 5.11 | \$ | 7.25 |
| Furnace..... | 4.96 | — 5.11 | | 7.25 |
| Stoker nut..... | 4.66 | — 4.86 | | 7.25 |
| Nut..... | | 4.27 | | 7.25 |
| Screenings..... | 3.51 | — 3.86 | | 6.80 |
| East Kentucky, West Virginia High Volatile | | | | |
| Freight rate to Chicago \$3.59 a ton | | | | |
| Block..... | 4.11 | — 4.41 | 6.75 | — 7.00 |
| Furnace..... | 3.81 | — 4.16 | 6.75 | — 7.00 |
| Egg..... | | 3.71 | 5.15 | — 5.35 |
| Stove..... | | — | 5.10 | — 5.20 |
| Nut..... | | — | 5.05 | — 5.15 |
| Stoker..... (Nut | 3.66 | — 4.41) | (Commercial | 5.50) |
| Nut and slack..... | | — | | 5.15 |
| West Kentucky No. 6 | | | | |
| Freight rate to Chicago \$2.70 a ton | | | | |
| Lump, 6"..... | | 3.00 | | 4.65 |
| Egg, 6" x 3"..... | | 3.00 | | 4.65 |
| Stoker nut..... | | 3.40 | | 5.35 |
| Screenings..... | | 2.75 | | 4.95 |
| West Kentucky No. 9 | | | | |
| Freight rate to Chicago \$2.70 a ton | | | | |
| Lump, 6"..... | 2.55 | — 2.70 | | 4.40 |
| Egg, 6" x 3"..... | 2.50 | — 2.40 | | 4.40 |
| Stoker nut..... | 2.15 | — 2.80 | | 4.00 |
| Screenings..... | 1.95 | — 2.25 | | 3.40 |
| West Kentucky No. 11 | | | | |
| Freight rate to Chicago \$2.70 a ton | | | | |
| Washed furnace..... | | — | | 3.95 |
| Washed small egg, 2" x 2"..... | | — | | 3.95 |
| Washed nut, 2" x 1½"..... | | — | | 3.85 |
| Washed commercial stoker..... | | — | | 4.00 |
| Mine run..... | 2.40 | — 2.60 | | 3.70 |

^a Source: Chicago Journal of Commerce,^b Freight rates as of December 1947.

TABLE 17.—AVERAGE PER TON OPERATING DATA FOR COMMERCIAL BITUMINOUS COAL MINES BY TYPE OF MINE, 1943-1946^a

| Type of mine | Sales realization | Total costs ^{b, c} | Mine labor cost | Mine supply cost | Other producing cost | Total producing cost | Administrative cost | Selling cost |
|--------------------------------|-------------------|-----------------------------|-----------------|------------------|----------------------|----------------------|---------------------|--------------|
| United States, all mines | | | | | | | | |
| 1943..... | \$2.71 | \$2.49 | \$1.49 | \$0.42 | \$0.40 | \$2.32 | \$0.06 | \$0.12 |
| 1944..... | 2.94 | 2.71 | 1.67 | .45 | .40 | 2.52 | .07 | .12 |
| 1945..... | 3.08 | 2.90 | 1.76 | .49 | .45 | 2.70 | .08 | .12 |
| 1946..... | 3.45 | 3.28 | 2.06 | .53 | .47 | 3.06 | .09 | .13 |
| Illinois, all mines | | | | | | | | |
| 1943..... | 2.18 | 1.85 | .95 | .41 | .33 | 1.69 | .06 | .10 |
| 1944..... | 2.28 | 1.99 | 1.05 | .44 | .35 | 1.84 | .06 | .09 |
| 1945..... | 2.38 | 2.13 | 1.13 | .48 | .36 | 1.97 | .07 | .09 |
| 1946..... | 2.63 | 2.44 | 1.39 | .51 | .36 | 2.26 | .08 | .10 |
| Illinois hand-loading mines | | | | | | | | |
| 1943..... | 2.49 | 2.41 | 1.63 | .31 | .35 | 2.29 | .04 | .08 |
| 1944..... | 2.63 | 2.56 | 1.77 | .33 | .35 | 2.45 | .04 | .07 |
| 1945..... | 2.74 | 2.67 | 1.86 | .34 | .35 | 2.55 | .04 | .08 |
| 1946..... | 3.04 | 2.97 | 2.10 | .37 | .37 | 2.84 | .05 | .08 |
| Illinois machine-loading mines | | | | | | | | |
| 1943..... | 2.18 | 1.85 | 1.02 | .38 | .30 | 1.70 | .06 | .09 |
| 1944..... | 2.27 | 2.02 | 1.15 | .42 | .31 | 1.88 | .06 | .08 |
| 1945..... | 2.38 | 2.16 | 1.24 | .46 | .31 | 2.01 | .07 | .08 |
| 1946..... | 2.66 | 2.51 | 1.53 | .48 | .33 | 2.31 | .08 | .09 |
| Illinois strip mines | | | | | | | | |
| 1943..... | 2.08 | 1.68 | .57 | .50 | .43 | 1.50 | .06 | .12 |
| 1944..... | 2.21 | 1.76 | .61 | .51 | .44 | 1.56 | .08 | .12 |
| 1945..... | 2.28 | 1.93 | .69 | .57 | .47 | 1.73 | .08 | .12 |
| 1946..... | 2.47 | 2.15 | .86 | .60 | .47 | 1.93 | .10 | .12 |

^a Source: Survey of Commercial Bituminous Coal Mines, O.P.A. Economic Data Series No. 15.^b Total costs include producing, administrative and selling.^c Unit figures may not add to their totals because of rounding.TABLE 18.—UNITED STATES EXPORTS OF BITUMINOUS COAL, 1934-1947^a
(Thousands of tons)

| Year | Amount |
|-------------------------|----------|
| 1934..... | 10,868.5 |
| 1935..... | 9,742.4 |
| 1936..... | 10,654.9 |
| 1937..... | 13,144.7 |
| 1938..... | 10,490.3 |
| 1939..... | 11,590.5 |
| 1940..... | 16,465.9 |
| 1941..... | 20,740.5 |
| 1942..... | 22,943.3 |
| 1943..... | 25,836.2 |
| 1944..... | 26,032.3 |
| 1945..... | 27,956.2 |
| 1946 ^b | 41,208.6 |
| 1947 ^b | 68,605.7 |

^a Source: U. S. Bureau of Mines.^b Preliminary figures.TABLE 19.—ILLINOIS COAL SUPPLIED TO ILLINOIS AND INDIANA COKE PLANTS, 1938-1947^a
(In tons)

| Year | To Illinois plants | To Indiana plants | Total |
|-----------|--------------------|-------------------|---------|
| 1938..... | 106,667 | — | 106,667 |
| 1939..... | 123,248 | — | 123,248 |
| 1940..... | 214,845 | — | 214,845 |
| 1941..... | 236,251 | — | 236,251 |
| 1942..... | 227,197 | 128,490 | 355,687 |
| 1943..... | 218,496 | 295,898 | 514,394 |
| 1944..... | 141,067 | 4,493 | 145,560 |
| 1945..... | 246,304 | — | 246,304 |
| 1946..... | 214,545 | 176,205 | 390,750 |
| 1947..... | 226,873 | 225,907 | 452,780 |

^a Source: U. S. Bureau of Mines.

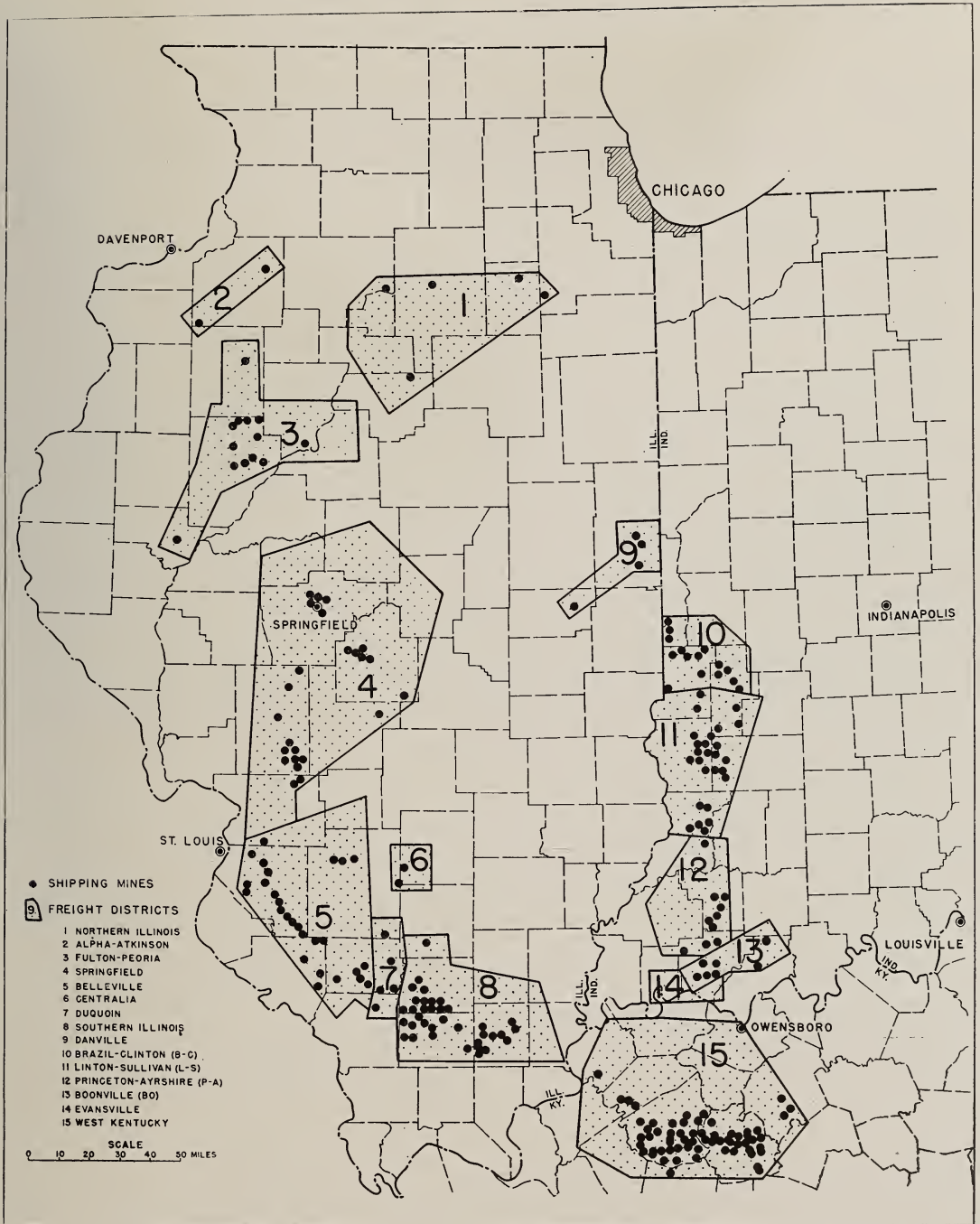


FIG. 5.—Location of principal coal mining districts and coal beds mined in Illinois, Indiana, and western Kentucky.

TABLE 20.—COKE AND BYPRODUCTS PRODUCED, SOLD,

| | 1944 | | |
|-------------------------------------------------|----------|----------------------|---------|
| | Quantity | Value at plants | |
| | | Thousands of dollars | Av. |
| Coal used (M tons)..... | 5,482 | \$33,110 | \$ 6.04 |
| Coal per ton of coke (tons)..... | 1.41 | | 8.52 |
| Coke produced (M tons)..... | 3,879 | 34,074 | 8.78 |
| Yield of coke (percent of coal used)..... | 70.75 | | |
| Plants in operation..... | 9 | | |
| Ovens in existence Dec. 31..... | 992 | | |
| Capacity (M tons)..... | 4,475 | | |
| New ovens..... | 75 | | |
| Abandoned..... | 0 | | |
| Under construction..... | 0 | | |
| Source of coal used (M tons) | | | |
| Illinois..... | 141 | | |
| Indiana..... | 16 | | |
| Kentucky..... | 1,899 | | |
| Pennsylvania..... | 515 | | |
| West Virginia..... | 2,858 | | |
| Other..... | 0 | | |
| Total (M tons)..... | 5,430 | | |
| Coke sold or used by producer (M tons) | | | |
| Used by producer in blast furnace..... | 1,871 | 15,686 | 8.38 |
| Sold for furnace use..... | 1,107 | 9,400 | 8.49 |
| Sold for foundry use..... | 285 | 3,461 | 12.14 |
| Sold for domestic use..... | 506 | 4,662 | 9.21 |
| Sold for industrial and other use..... | 106 | 852 | 8.05 |
| Coke oven byproducts | | | |
| Ammonia produced (sulfate equiv.) (M lbs.)..... | 102,909 | | |
| Per ton of coal coked (lbs.)..... | 18.77 | | |
| Sulfate equivalent sold (M lbs.)..... | 100,728 | 1,217 | 0.012 |
| Coke oven gas produced (Millions cu. ft.)..... | 54,864 | | |
| Used..... | 17,351 | | |
| Sold..... | 36,465 | 5,442 | 0.149 |
| Light oil and derivatives sold (M gal.)..... | 6,992 | 1,058 | 0.151 |
| Tar produced (M gal.)..... | 38,099 | | |
| Per ton of coal coked (gal.)..... | 6.95 | | |
| Tar and derivatives sold (M gal.)..... | 37,810 | 2,023 | 0.054 |
| Total coke and byproducts used or sold..... | | \$43,801 | |

OR USED BY PRODUCERS IN ILLINOIS, 1944-1947^a

| 1945 | | | 1946 | | | 1947 | | | Percent change in amount from 1946 |
|-----------------------------------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------------------------------|------------------------------------------|----------------------------------------|-----------------------------------------------------------------|---------------------------------------------|-------------------------------------------|--------------------------------------------------------------|
| Quantity | Value at plants | | Quantity | Value at plants | | Quantity | Value at plants | | |
| | Thousands of dollars | Av. | | Thousands of dollars | Av. | | Thousands of dollars | Av. | |
| 5,198 1.41 3,682 70.83 | \$32,034 32,378 | \$6.16 8.69 8.79 | 4,505 1.41 3,192 70.86 | \$30,196 32,242 | \$6.70 9.46 10.10 | 5,359 1.41 3,805 71.01 | \$42,897 49,268 | \$8.00 11.27 12.95 | +18.95 +19.20 |
| 9 882 4,005 0 110 0 | | | 9 856 3,899 0 26 0 | | | 8 856 3,845 0 0 0 | | | |
| 246 51 1,792 438 2,718 0 | | | 215 37 1,481 390 2,326 0 | | | 227 64 2,010 212 2,762 25 | | | |
| 5,247 | | | 4,449 | | | 5,300 | | | |
| 1,742 1,218 314 356 84 | 14,167 10,558 3,815 3,415 731 | 8.13 8.67 12.10 9.57 8.70 | 1,532 949 314 239 81 | 15,135 9,072 4,179 2,470 772 | 9.88 9.56 13.28 10.32 9.56 | 1,793 1,365 355 133 92 | 20,341 19,926 5,819 1,468 1,030 | 11.34 14.60 16.39 11.04 11.20 | +17.03 +43.83 +13.06 -44.35 +13.58 |
| 92,942 17.88 97,612 | 1,199 | 0.012 | 79,057 19.34 79,585 | 1,105 | 0.014 | 90,797 18.90 89,970 | 1,416 | 0.016 | +14.85 +13.05 |
| 50,638 15,555 34,457 7,455 35,547 6.84 35,635 | 4,983 1,102 1,892 | 0.145 0.149 0.053 | 45,246 13,653 31,062 6,894 30,225 6.71 30,606 | 4,524 927 1,646 | 0.146 0.134 0.054 | 52,641 17,518 34,357 9,009 35,154 6.56 34,679 | 5,044 1,529 2,652 | 0.147 0.170 0.076 | +16.34 +28.31 +10.60 +30.68 +16.31 +13.31 |
| | \$41,862 | | | \$39,830 | | | \$59,225 | | +48.6 ^b |

^a U.S. Bureau of Mines.^b Percent change in value from 1946.

TABLE 21.—OVEN COKE PRODUCED IN THE UNITED STATES BY REGIONS, 1947^a
(In thousands of tons)

| Region | Coke produced |
|---------------------------------------------------|---------------|
| Connecticut, Massachusetts, Rhode Island..... | 1,891.1 |
| Maryland, New Jersey, New York, Pennsylvania..... | 25,170.2 |
| Ohio..... | 10,065.5 |
| Illinois, Indiana, Missouri..... | 12,884.5 |
| Michigan, Minnesota, Wisconsin..... | 4,346.8 |
| Alabama, Kentucky, Tennessee, West Virginia..... | 9,605.2 |
| California, Colorado, Texas, Utah..... | 2,416.9 |
| Total..... | 66,380.2 |

^aSource: U. S. Bureau of Mines.

DISTRIBUTION OF ILLINOIS COAL

Table 22 shows the all-rail distribution of Illinois coal according to region, state, and use for the calendar year 1946.

Shipments of Illinois coal via the Great Lakes to state of destination and use is shown in table 23.

Illinois and Indiana receive substantial quantities of coal via the Great Lakes from

TABLE 23.—SHIPMENTS OF ILLINOIS COAL VIA GREAT LAKES, 1946^a
(In tons)

| Destination and use | Amount |
|-------------------------------|---------|
| Michigan | |
| Industrial..... | 78,921 |
| Retail..... | 12,482 |
| Wisconsin | |
| Industrial..... | 28,284 |
| Canada..... | 17,452 |
| Railroad Fuel | |
| United States and Canada..... | 36,419 |
| Vessel Fuel..... | 1,306 |
| Total..... | 174,864 |

^aSource: U. S. Bureau of Mines.

Eastern producing districts. The amount received and its use is shown in table 24 for 1946.

FUEL BRIQUETS AND PACKAGED FUEL

The production and value of fuel briquets and packaged fuel in the United States, 1943-1947, is given in tables 25 and 26.

TABLE 24.—SHIPMENTS OF BITUMINOUS COAL VIA GREAT LAKES TO ILLINOIS AND INDIANA DOCKS, 1946^a
(In tons)

| Use | District of origin | | | | Total to consumer docks | Total to commercial docks ^b | Grand total |
|------------------|--------------------|----|-----------|-----------|-------------------------|----------------------------------------|-------------|
| | 2 | 3 | 7 | 8 | | | |
| <i>Illinois</i> | | | | | | | |
| Industrial..... | — | — | — | — | — | 59,617 | 59,617 |
| Retail..... | — | — | — | 16,629 | 16,629 | 74,474 | 91,103 |
| Byproducts..... | 278,297 | 67 | 314,889 | 887,588 | 1,480,841 | — | 1,480,841 |
| Smithing..... | — | — | — | — | — | 54 | 54 |
| Total..... | 278,297 | 67 | 314,889 | 904,217 | 1,497,470 | 134,145 | 1,631,615 |
| <i>Indiana</i> | | | | | | | |
| Industrial..... | — | — | — | — | — | 2,080 | 2,080 |
| Byproduct..... | 114,791 | — | 1,991,697 | 1,755,885 | 3,862,373 | — | 3,862,373 |
| Smithing..... | — | — | — | — | — | 47 | 47 |
| Total..... | 114,791 | — | 1,991,697 | 1,755,885 | 3,862,373 | 2,127 | 3,864,500 |
| Grand total..... | 393,088 | 67 | 2,306,586 | 2,660,102 | 5,359,843 | 136,272 | 5,496,115 |

^aSource: U. S. Bureau of Mines.^bDistrict of origin unknown.

TABLE 22.—ALL-RAIL DISTRIBUTION OF ILLINOIS COAL BY STATES AND BY USE
FOR CALENDAR YEAR 1946^{a, b}
(In tons)

| Receiving state by regions | Use | | | Total by state |
|----------------------------|------------|--------------|-------------------------------|-------------------|
| | Industrial | Retail yards | Byproduct and water gas | |
| Middle Atlantic | | | | |
| New York..... | 121 | — | — | 121 |
| Pennsylvania..... | 161 | — | — | 161 |
| East North Central | | | | |
| Illinois..... | 15,730,526 | 6,899,033 | 195,072 | 22,824,631 |
| Indiana..... | 1,640,319 | 175,239 | 174,106 | 1,989,664 |
| Michigan..... | 131,100 | 229,933 | — | 361,033 |
| Ohio..... | — | 316 | — | 316 |
| Wisconsin..... | 1,300,529 | 548,094 | — | 1,848,623 |
| West North Central | | | | |
| Iowa..... | 1,867,577 | 2,115,061 | — | 3,982,638 |
| Kansas..... | 567 | 38,623 | — | 39,190 |
| Minnesota..... | 854,462 | 326,948 | — | 1,181,410 |
| Missouri..... | 1,504,119 | 1,810,555 | 13,539 | 3,328,213 |
| Nebraska..... | 11,223 | 113,635 | — | 124,858 |
| North Dakota..... | 77 | 486 | — | 563 |
| South Dakota..... | 55,817 | 38,736 | — | 94,553 |
| South Atlantic | | | | |
| West Virginia..... | 26 | — | — | 26 |
| East South Central | | | | |
| Alabama..... | 19,490 | 8,565 | — | 28,055 |
| Kentucky..... | — | 940 | — | 940 |
| Mississippi..... | 10,845 | 25,814 | — | 36,659 |
| Tennessee..... | 8,873 | 75,730 | — | 84,603 |
| West South Central | | | | |
| Arkansas..... | 23,734 | 88,774 | — | 112,508 |
| Louisiana..... | 5,217 | 3,705 | — | 8,922 |
| Destination unknown..... | 2,348 | — | 505 | 2,853 |
| Total by use..... | 23,167,131 | 12,500,187 | 383,222 | 36,050,540 |

^a Source: U. S. Bureau of Mines.

^b Excluding railroad fuel.

FUELS AND IRON SUPPLY

The need for ample quantities of fuels in our modern industrial economy is generally understood. What is not so generally comprehended is the exacting nature of the fuels required to get the iron out of the ore and into the metallic form in order that it may be made into the multitude of commodities with which all of us are more or less familiar.

In this first step of getting the metallic iron out of its ore, the fuel must not only supply heat but also act as reducing agent. That is to say, the iron oxide which comprises the ore must be "reduced" by separating the oxygen from the iron, leaving the iron free. In the simplest language this merely means that a substance is brought in contact with the iron ore which has a stronger affinity for the oxygen in the ore than does the iron. There are several sub-

TABLE 25.—PRODUCTION, CONSUMPTION, AND VALUE OF FUEL BRIQUETS, UNITED STATES, 1943-1947^a
(In tons)

| Year | Production | | | | Imports | Exports | Apparent consumption | Value of production | Plants in operation | Average value per net ton f.o.b. plant | | |
|-----------|----------------|----------------|------------------------|-----------|---------|---------|----------------------|---------------------|---------------------|----------------------------------------|----------------|------------------------|
| | Eastern states | Central states | Pacific coastal states | Total | | | | | | Eastern states | Central states | Pacific Coastal states |
| 1943..... | 544,786 | 1,493,368 | 125,844 | 2,163,998 | 198 | 174,973 | 1,989,223 | \$15,148,109 | 28 | \$5.04 | \$ 7.44 | \$10.26 |
| 1944..... | 625,779 | 1,704,005 | 135,177 | 2,464,961 | 538 | 163,672 | 2,301,827 | 18,434,579 | 30 | 5.42 | 8.03 | 10.07 |
| 1945..... | 637,740 | 1,991,733 | 132,731 | 2,762,204 | 722 | 174,107 | 2,588,819 | 21,678,886 | 32 | 5.65 | 8.40 | 10.04 |
| 1946..... | 880,109 | 1,986,234 | 137,684 | 3,004,027 | 653 | 163,339 | 2,841,341 | 25,299,612 | 35 | 6.61 | 9.03 | 11.26 |
| 1947..... | 1,089,705 | 1,966,834 | 115,057 | 3,171,596 | 387 | 248,760 | 2,923,223 | 30,762,253 | 35 | 7.82 | 10.56 | 12.77 |

^a Source: U. S. Bureau of Mines.TABLE 26.—PRODUCTION AND VALUE OF PACKAGED FUEL, UNITED STATES, 1943-1947^a

| Year | Production (in tons) | | | Value of production | Plants in operation | Average value per net ton, f.o.b. plant | |
|-----------|----------------------|----------------|---------|---------------------|---------------------|-----------------------------------------|----------------|
| | Eastern states | Central states | Total | | | Eastern states | Central states |
| 1943..... | 4,970 | 210,635 | 215,605 | \$2,366,733 | 72 | \$11.55 | \$10.96 |
| 1944..... | 3,788 | 171,982 | 175,770 | 2,053,343 | 68 | 12.26 | 11.67 |
| 1945..... | 16,606 | 191,537 | 208,143 | 2,518,636 | 61 | 12.86 | 12.04 |
| 1946..... | 9,065 | 181,854 | 190,919 | 2,496,388 | 70 | 12.93 | 13.08 |
| 1947..... | 2,153 | 180,728 | 182,881 | 2,882,105 | 62 | 16.58 | 15.75 |

^a Source: U. S. Bureau of Mines.

stances which can serve as reducing agents, such as carbon, carbon monoxide, methane or hydrogen, but under the practical conditions of iron smelting the reducing agent used is carbon monoxide. It is not practical to operate a modern blast furnace by feeding carbon monoxide into it, but it is supplied by the coke that is mixed with iron ore and limestone in the furnace.

Coke is a hard, strong, porous, substance which consists of the solid residue of coal that has been heated in the coke oven for the purpose of distilling off all the volatile matter and moisture. The coke for metallurgical use must be carefully prepared because it must perform satisfactorily three functions: It must be strong to hold the heavy ore burden in the blast furnace without crushing and stopping the passage of air through the furnace; it must be porous to give a large burning surface and thus produce high heat from rapid burning; and it must be partially burned to yield the gaseous carbon monoxide which, under the high temperature inside the furnace, brings about the reduction of the iron ore.

With this brief description of the function of fuel in the blast furnace and the form in which this fuel must be prepared, we turn to the question of the requirements needed in coal which is used in the manufacture of coke. We must find a coal that will make metallurgical coke. Any type of coal can be put into a coke oven and distilled by heat, but only a limited portion of the coal supply of the world will yield the hard, porous, lumpy form of coke that will be satisfactory for blast furnace use. Second, the sulphur content of the source coal must be kept at a minimum because sulphur in the coke enters the pig iron and is harmful material in steel making. Third, the supply of suitable coking coal must be near the source of iron ore in order to keep costs down.

The first step in iron manufacture involves bringing together large tonnages of raw material which become costly through transportation charges over a considerable distance. In our own country, for instance, there are substantial bodies of coal suitable for coking in our western states, but the

cost of shipping this coal (or coke) to existing furnaces would be prohibitive. The alternative of shipping iron ore over long distances to the coal mines would also be prohibitive in cost. The importance of low assembly costs on these two particular materials, coking coal and iron ore, becomes apparent when one considers that 33 percent of all fuels used in manufacturing are needed in the first step of ore reduction.

The unique characteristic of the iron manufacturing industries lies in the fact that under present conditions of technology there is no substitute for coke as the reducing fuel. This, together with the large tonnages of material involved in the treating of iron, acts to limit sharply the places where iron production can be carried on economically and commercially. By contrast, the manufacturing of goods beyond the first step of freeing iron, can use almost any type of fuel, including coal of nearly all ranks, as well as oil or natural gas.

Since these fuels, in the aggregate, are far more widely distributed than coking coal, general manufacturing is not subject to the geographical restriction of location that surround iron output.

COKE THROUGHOUT THE WORLD

A look around the coal producing nations of the world discloses an abundance of coking coal in the Appalachian district of North America and additional quantities in some of the mountain states, in the United Kingdom, in the Ruhr Valley, and lesser quantities in Poland and in Manchuria. In India, South America, and South Africa, each with large iron deposits, limited supplies of coking coal restrict the development of an iron industry.

In the Union of South Africa, there is anxiety in regard to coking coal reserves. Much of the coal is now being sold inland, for export and for bunkers, as steam coal. Although Johannesburg, Capetown, Port Elizabeth, and one or two other cities possess gas works, coke ovens are being extended as the manufacture of steel and similar products progress in the country. Un-

less steps are taken to conserve and use the meagre coking coal reserves to the best advantage, the country may face a serious shortage within a fairly short time.

In India the question of available reserves of coking coal is also critical. The country's resources of coal suitable for ordinary steam purposes are ample but the reserve of good coking coal appears to be very limited. Reductions on the use of coal suitable for coking have been urged.

Iron deposits the world over, which in themselves are ores of high iron content, lie useless because coke is unavailable, and no other method is known for reducing the ore in large quantities. Nevertheless, the need for iron as an aid to a better living is urgent in many populated areas of the world. Possibly the number one technological problem to be solved is the reduction of iron ore by means other than the blast furnace and its exacting fuel requirements.

PETROLEUM AND NATURAL GAS

PRODUCTION OF PETROLEUM

The production of petroleum in the United States in 1947 was 1,856,107,000 bbls., which is 7 percent above the production in 1946, shown in table 27. This table also gives production by states for the past

decade. Table 28 shows the percentage of production by each state for the past ten years. This shows the increasing positions of Texas and Louisiana and a relative decline of Oklahoma. California shows little change (fig. 6).

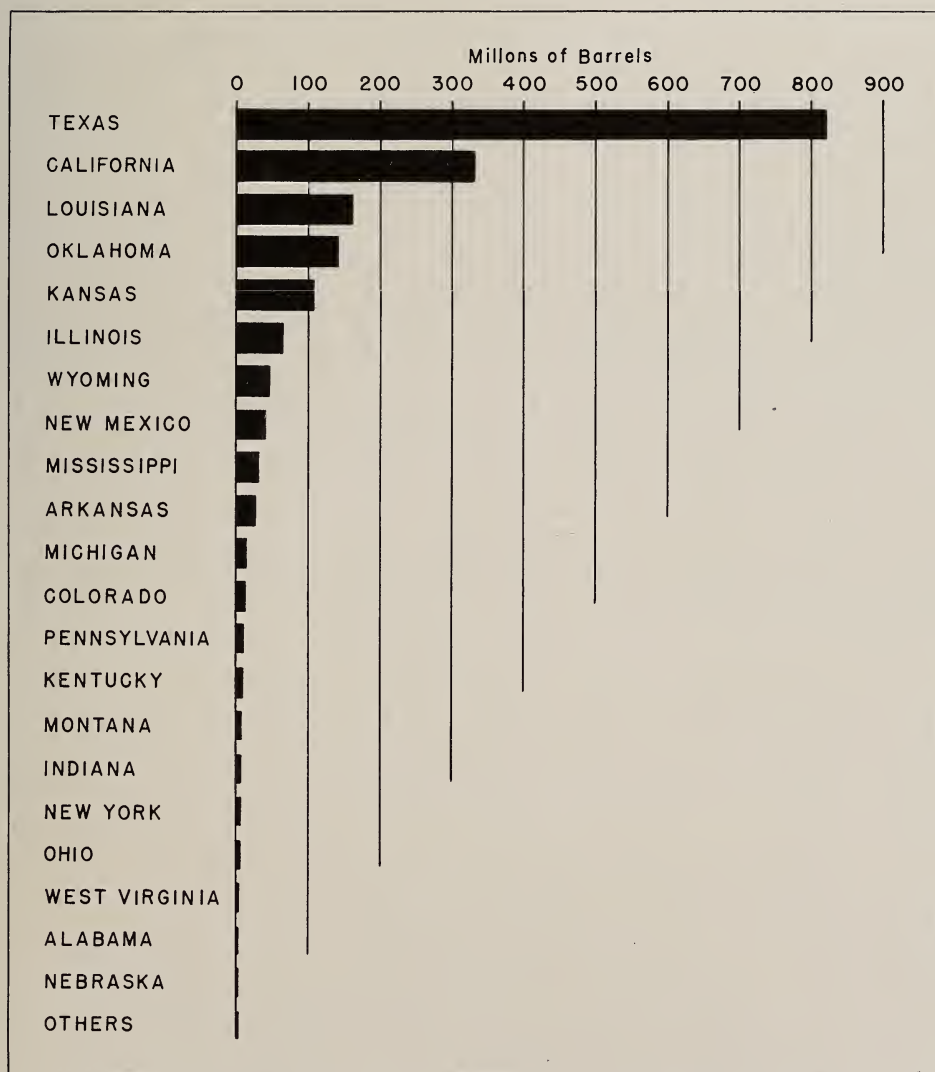


FIG. 6.—United States production of crude petroleum by states, 1947.

TABLE 27.—PRODUCTION OF CRUDE PETROLEUM BY STATES, 1938–1947^a
(Thousands of barrels)

| State | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 ^b |
|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|
| Alabama..... | — | — | — | — | — | — | 43 | 181 | 380 | 396 |
| Arkansas..... | 18,180 | 21,238 | 25,775 | 26,327 | 26,628 | 27,600 | 29,413 | 28,613 | 28,375 | 29,990 |
| California..... | 249,749 | 224,354 | 223,381 | 230,263 | 248,326 | 284,188 | 311,793 | 326,482 | 314,713 | 333,102 |
| Colorado..... | 1,412 | 1,404 | 1,626 | 2,150 | 2,199 | 2,320 | 3,083 | 5,036 | 11,856 | 15,748 |
| Illinois..... | 24,075 | 94,912 | 147,647 | 132,393 | 106,391 | 82,260 | 77,413 | 75,094 | 75,297 | 66,459 |
| Indiana..... | 995 | 1,711 | 4,978 | 7,411 | 6,743 | 5,283 | 5,118 | 4,868 | 6,726 | 5,853 |
| Kansas..... | 60,064 | 60,703 | 66,139 | 83,242 | 97,636 | 106,178 | 98,762 | 96,415 | 97,218 | 105,346 |
| Kentucky..... | 5,821 | 5,621 | 5,188 | 4,762 | 4,534 | 7,883 | 9,621 | 10,325 | 10,578 | 9,397 |
| Louisiana..... | 95,208 | 93,646 | 103,584 | 115,908 | 115,785 | 123,592 | 129,645 | 131,051 | 143,669 | 160,291 |
| Michigan..... | 18,745 | 23,462 | 19,753 | 16,359 | 21,754 | 20,768 | 18,490 | 17,267 | 17,074 | 16,215 |
| Mississippi..... | — | 107 | 4,400 | 15,327 | 28,833 | 18,807 | 16,337 | 19,062 | 24,298 | 35,017 |
| Montana..... | 4,946 | 5,960 | 6,728 | 7,526 | 8,074 | 7,916 | 8,647 | 8,420 | 8,825 | 8,693 |
| Nebraska..... | — | 2 | 276 | 1,898 | 1,237 | 635 | 417 | 305 | 293 | 229 |
| New Mexico..... | 35,759 | 37,637 | 39,129 | 39,569 | 31,544 | 38,896 | 39,555 | 37,351 | 36,814 | 41,127 |
| New York..... | 5,045 | 5,098 | 4,999 | 5,185 | 5,421 | 5,059 | 4,697 | 4,648 | 4,863 | 4,762 |
| Ohio..... | 3,298 | 3,156 | 3,159 | 3,510 | 3,543 | 3,322 | 2,937 | 2,828 | 2,908 | 3,108 |
| Oklahoma..... | 174,994 | 159,913 | 156,164 | 154,702 | 140,690 | 123,152 | 124,616 | 139,299 | 134,794 | 141,019 |
| Pennsylvania..... | 17,426 | 17,382 | 17,353 | 16,750 | 17,779 | 15,757 | 14,118 | 12,515 | 12,996 | 12,690 |
| Texas..... | 475,850 | 483,528 | 493,209 | 505,572 | 483,097 | 594,343 | 746,699 | 754,710 | 760,215 | 819,427 |
| West Virginia..... | 3,684 | 3,580 | 3,444 | 3,433 | 3,574 | 3,349 | 3,070 | 2,879 | 2,929 | 2,617 |
| Wyoming..... | 19,022 | 21,454 | 25,711 | 29,878 | 32,812 | 34,253 | 33,356 | 36,219 | 38,977 | 44,238 |
| Other states..... | 82 | 94 | 71 | 63 | 45 | 52 | 69 | 87 | 141 | 382 |
| Total United States..... | 1,214,355 | 1,264,962 | 1,353,214 | 1,402,228 | 1,386,645 | 1,505,613 | 1,677,904 | 1,713,655 | 1,733,939 | 1,856,107 |

^a Source: U. S. Bureau of Mines.^b Subject to revision.

TABLE 28.—PETROLEUM PRODUCED BY PRINCIPAL STATES AS A PERCENT OF UNITED STATES TOTAL, 1938-1947^a

| State | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 ^b | 1946 ^b | 1947 ^b |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------------------|-------------------|
| Texas..... | 39.2 | 38.2 | 36.4 | 36.1 | 34.8 | 39.5 | 44.5 | 44.1 | 43.8 | 44.1 |
| California..... | 20.6 | 17.7 | 16.6 | 16.4 | 17.9 | 18.9 | 18.6 | 19.1 | 18.2 | 17.9 |
| Oklahoma..... | 14.4 | 12.7 | 11.5 | 11.0 | 10.2 | 8.2 | 7.4 | 8.1 | 7.8 | 7.6 |
| Louisiana..... | 7.8 | 7.4 | 7.7 | 8.3 | 8.3 | 8.2 | 7.7 | 7.6 | 8.3 | 8.6 |
| Kansas..... | 5.0 | 4.8 | 4.9 | 5.9 | 7.0 | 7.0 | 5.9 | 5.6 | 5.6 | 5.7 |
| Illinois..... | 2.0 | 7.5 | 10.9 | 9.4 | 7.7 | 5.5 | 4.6 | 4.4 | 4.3 | 3.6 |
| New Mexico..... | 2.9 | 3.0 | 2.9 | 2.8 | 2.3 | 2.6 | 2.4 | 2.2 | 2.1 | 2.2 |
| Wyoming..... | 1.6 | 1.7 | 1.9 | 2.1 | 2.4 | 2.3 | 2.0 | 2.1 | 2.2 | 2.4 |
| Arkansas..... | 1.5 | 1.7 | 1.9 | 1.9 | 1.9 | 1.8 | 1.8 | 1.7 | 1.6 | 1.6 |
| Mississippi..... | — | — | .3 | 1.1 | 2.1 | 1.2 | 1.0 | 1.1 | 1.4 | 1.9 |
| Michigan..... | 1.5 | 1.8 | 1.5 | 1.2 | 1.6 | 1.4 | 1.1 | 1.0 | 1.0 | .9 |
| Pennsylvania..... | 1.4 | 1.4 | 1.3 | 1.2 | 1.3 | 1.0 | .8 | .7 | .7 | .7 |
| All other..... | 2.1 | 2.1 | 2.2 | 2.6 | 2.5 | 2.4 | 2.2 | 2.3 | 3.0 | 2.8 |
| Total percent..... | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

^a Source: U. S. Bureau of Mines.

^b Subject to revision.

ILLINOIS PRODUCTION

Oil production in Illinois in 1947 was 66,459,000 bbls. This is a decrease of 12 percent from the preceding year.

A history of oil production and drilling activity for the period since the new fields were discovered is given in table 29. The new fields discovered in 1947 are shown in figure 7, and Illinois production from 1905

 TABLE 29.—ILLINOIS COMPLETIONS AND PRODUCTION, 1936-1947^a

| Year | Completions ^b | Producing wells | Production (thousands of barrels) | | |
|-----------|--------------------------|-----------------|-----------------------------------|----------------------------|--------------------|
| | | | New fields ^c | Old fields ^{c, d} | Total ^e |
| 1936..... | 93 | 52 | | | 4,445 |
| 1937..... | 449 | 292 | 2,884 | 4,542 | 7,426 |
| 1938..... | 2,536 | 2,010 | 19,771 | 4,304 | 24,075 |
| 1939..... | 3,617 | 2,970 | 90,908 | 4,004 | 94,912 |
| 1940..... | 3,755 | 3,080 | 142,969 | 4,678 | 147,647 |
| 1941..... | 3,807 | 2,925 | 128,993 | 5,145 | 134,138 |
| 1942..... | 2,017 | 1,179 | 101,837 | 4,753 | 106,590 |
| 1943..... | 1,791 | 1,090(20) | 77,581 | 4,675 | 82,256 |
| 1944..... | 1,991 | 1,229(12) | 72,946 | 4,467 | 77,413 |
| 1945..... | 1,763 | 1,094(15) | 70,839 | 4,371 | 75,210 |
| 1946..... | 2,362 | 1,387(17) | 70,174 | 5,123 | 75,297 |
| 1947..... | 2,046 | 1,102(22) | 61,420 | 5,039 | 66,459 |

^a Source: Illinois State Geological Survey Monthly Drilling Reports.

^b Includes only oil and gas producers and dry holes.

^c Production figures based on information furnished by oil companies and pipe line companies.

^d Includes Devonian production at Sandoval and Bartelso.

^e From the U. S. Bureau of Mines.

^f Figures in parentheses refer to number of producing wells included in total which had previously been completed as dry holes.

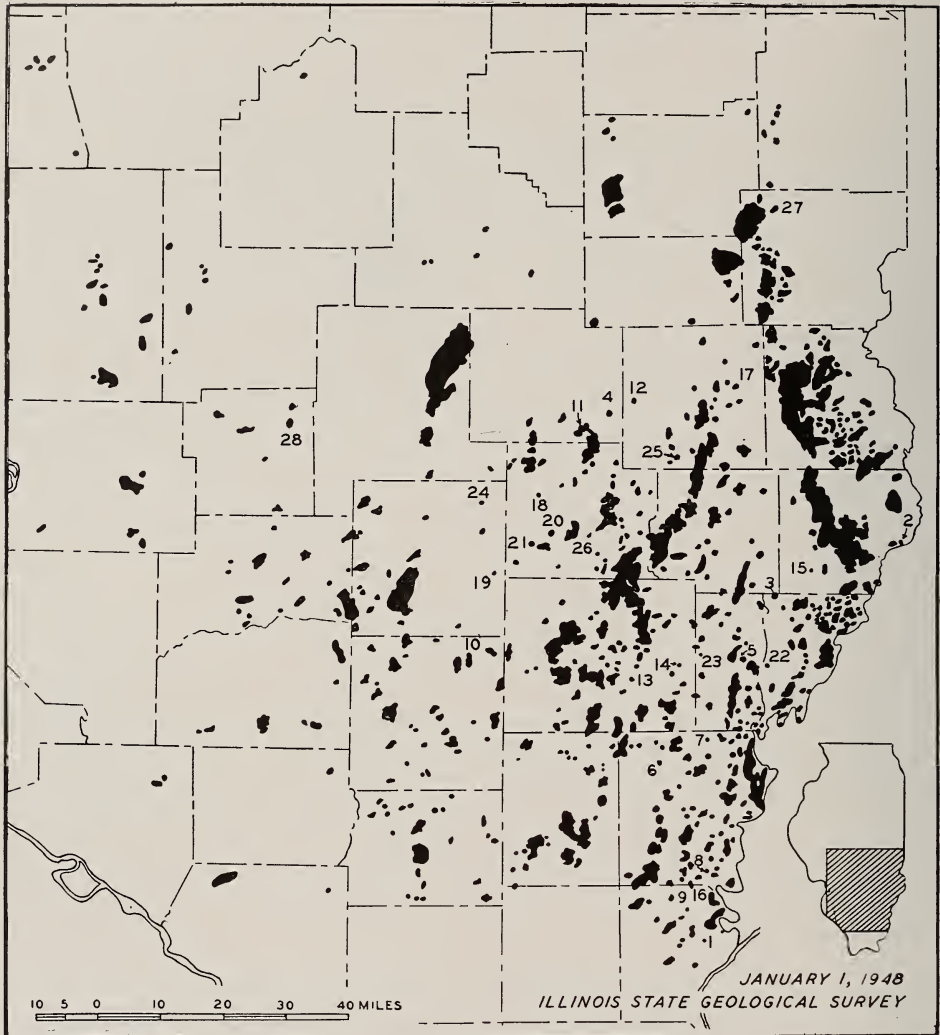


FIG. 7.—New pools discovered in Illinois, 1947.

- | | | |
|------------------------|---------------------|--------------------|
| 1. Ab Lake | 10. Divide East | 19. Iuka |
| 2. Beman East | 11. Eberle | 20. Kenner North |
| 3. Berryville | 12. Elliottstown | 21. Kenner West |
| 4. Bible Grove North | 13. Fairfield East | 22. Lexington |
| 5. Bone Gap South | 14. Half Moon | 23. Massilon South |
| 6. Burnt Prairie South | 15. Helena | 24. Miletus |
| 7. Centerville North | 16. Herald East | 25. Newton West |
| 8. Concord Central | 17. Hunt City South | 26. Stanford West |
| 9. Cottonwood | 18. Iola South | 27. Westfield East |
| | | 28. Woburn South |

to 1947 is shown in figure 8. The sharp rise reflects the opening of the Illinois basin fields in 1936.

Figure 9 shows that in 1945, gasoline constituted about 41 percent of the refined

petroleum products in the United States, with residual fuel oil making up about 27 percent and distillate fuel oil 14.5 percent. The remaining percentage is divided among still gas, kerosene, lubricating oil, asphalt, and other minor products.

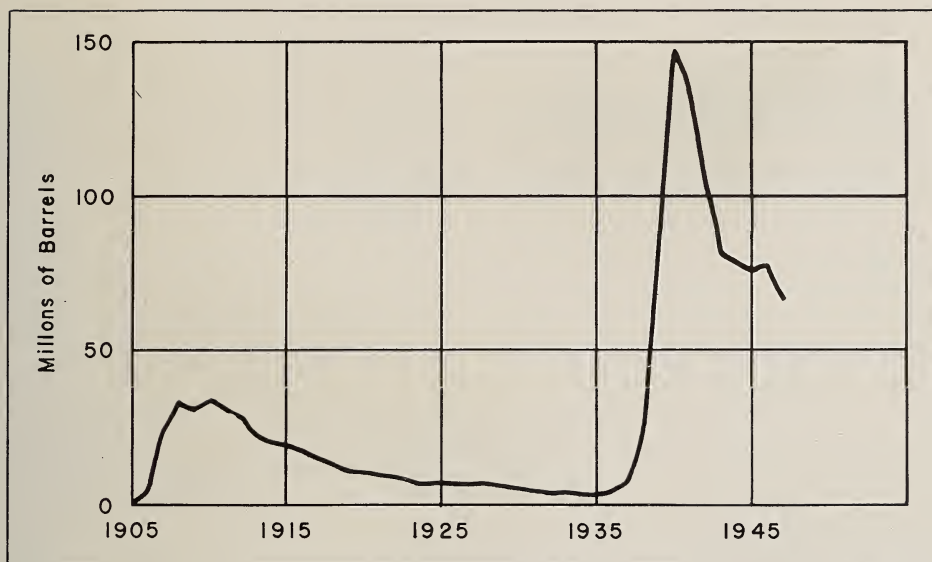


FIG. 8.—Illinois production of crude petroleum, 1905-1947.

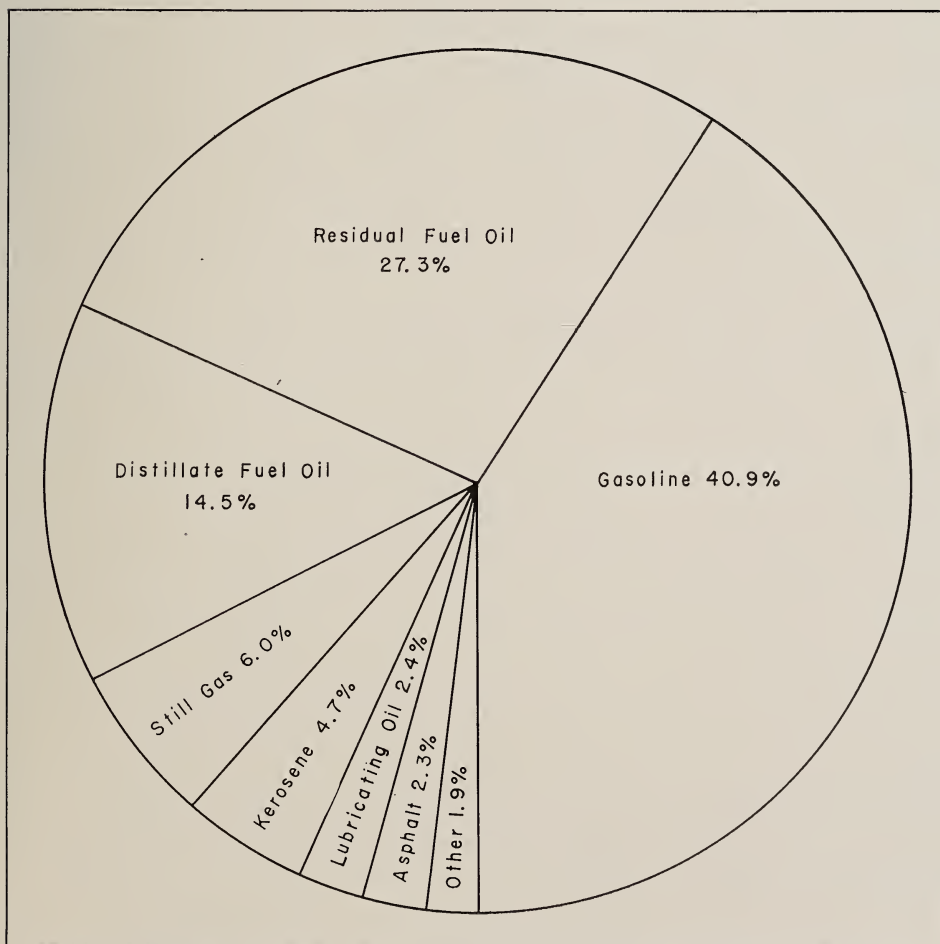


FIG. 9.—Percentage yields of some refined petroleum products, United States, 1945.

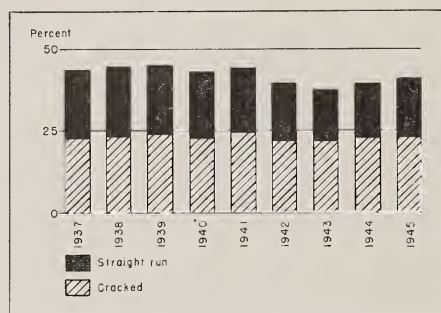


FIG. 10.—Percent of crude petroleum converted into motor fuel, by methods of manufacture, 1937-1945.

TABLE 30.—MOTOR FUEL PRODUCTION BY METHODS OF MANUFACTURE, 1937-1946^a
(Thousands of barrels)

| Year | Method of manufacture | | Percent of crude runs-to-stills | | |
|-------------------|-----------------------|--------------|---------------------------------|------------------|---------------|
| | Cracked | Straight run | Cracked | Straight run | Total percent |
| 1937 | 268,136 | 251,507 | 22.7 | 21.2 | 43.9 |
| 1938 | 270,471 | 245,418 | 23.2 | 21.1 | 44.3 |
| 1939 | 295,142 | 260,463 | 23.9 | 21.0 | 44.9 |
| 1940 | 294,365 | 263,584 | 22.7 | 20.4 | 43.1 |
| 1941 | 344,013 | 279,272 | 24.4 | 19.8 | 44.2 |
| 1942 | 296,928 | 233,114 | 22.2 | 17.5 | 39.7 |
| 1943 | 314,454 | 216,773 | 22.0 | 15.2 | 37.2 |
| 1944 | 385,567 | 269,944 | 23.2 | 16.2 | 39.4 |
| 1945 | 401,789 | 302,347 | 23.3 | 17.6 | 40.9 |
| 1946 ^b | 390,208 | 295,342 | (^c) | (^c) | — |

^a Source: U. S. Bureau of Mines.

^b Subject to correction.

^c Not available.

TABLE 31.—AVIATION GASOLINE, 1943-1947^a
(Thousands of barrels)

| | 1943 | 1944 | 1945 | 1946 | 1947 ^b |
|----------------------|--------|---------|---------|--------|-------------------|
| Production | | | | | |
| 100-octane and above | 62,044 | 136,130 | 124,215 | 5,342 | 17,867 |
| Other grades | 44,179 | 60,253 | 28,180 | 20,070 | 17,429 |
| Transfers out | 2,175 | 3,943 | 11,162 | 10,932 | 7,106 |
| Exports | 23,516 | 57,150 | 34,117 | 2,294 | 5,071 |
| Stocks | | | | | |
| 100-octane and above | 3,016 | 5,096 | 1,450 | 1,472 | 2,422 |
| Other grades | 9,468 | 10,050 | 3,822 | 3,081 | 3,642 |
| Domestic demand | | | | | |
| All grades | 79,944 | 132,628 | 116,990 | 12,905 | 21,608 |
| Total demand | | | | | |
| 100-octane and above | 60,992 | 134,140 | 127,674 | 5,825 | 16,492 |
| Other finished | 37,929 | 50,216 | 17,893 | 8,576 | 9,188 |
| Components | 4,539 | 5,422 | 5,540 | 798 | 999 |

^a Source: U. S. Bureau of Mines.

^b Subject to revision.

Table 30 gives the amount and percent of motor fuel produced by methods of manufacture in the United States, 1937-1946. This is shown graphically in figure 10.

AVIATION GASOLINE

The production of aviation gasoline, the exports, and the domestic demand for five years are shown in table 31. The important role of high octane gasoline for war use is apparent from this table.

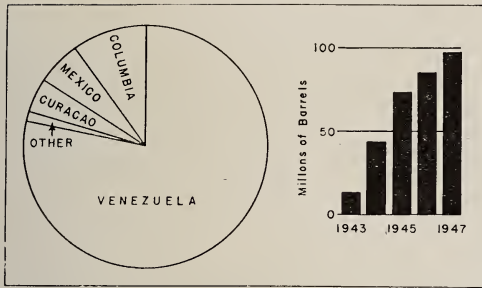


FIG. 11.—United States crude petroleum imports, 1943-1947. The pie chart shows the countries that supplied the imports in 1947.

IMPORTS

Crude oil imported into the United States comes almost exclusively from South American countries (fig. 11). Since 1946 and 1947 small quantities have been received from Kuwait and Saudi Arabia, in the Persian Gulf area (table 32).

The estimates of proved oil reserves in the states serving the Illinois area as of January 1, 1948, are given in table 33. Illinois shows a slight increase from 1947.

TABLE 32.—IMPORTS OF FOREIGN CRUDE PETROLEUM, 1943-1947^a
(Thousands of barrels)

| From | 1943 | 1944 | 1945 | 1946 | 1947 ^b |
|-------------------|--------|--------|--------|--------|-------------------|
| Colombia..... | 3,073 | 7,891 | 8,610 | 8,351 | 10,944 |
| Curacao..... | 750 | 4,299 | 5,445 | 5,198 | 5,125 |
| Kuwait..... | — | — | — | 115 | 111 |
| Mexico..... | 1,079 | 584 | 2,501 | 2,869 | 5,578 |
| Venezuela..... | 8,931 | 32,031 | 57,781 | 69,533 | 75,499 |
| Saudi Arabia..... | — | — | — | — | 275 |
| Total..... | 13,833 | 44,805 | 74,337 | 86,066 | 97,532 |

^a Source: U. S. Bureau of Mines.

^b Subject to revision.

TABLE 33.—ESTIMATES OF PROVED OIL RESERVES IN THE STATES
SERVING THE ILLINOIS AREA, 1937-1948^a
(Millions of barrels)

| As of January 1 | Oklahoma | Kansas | Illinois | Arkansas | Kentucky | Indiana | Nebraska | Michigan |
|--------------------|----------|--------|----------|----------|----------|---------|----------|----------|
| 1937..... | 1,141 | 568 | 28 | 84 | 39 | 3 | — | 44 |
| 1938..... | 1,212 | 601 | 41 | 192 | 38 | 3 | — | 49 |
| 1939..... | 1,162 | 613 | 243 | 188 | 38 | 6 | — | 43 |
| 1940..... | 1,063 | 726 | 382 | 320 | 44 | 14 | — | 51 |
| 1941..... | 1,002 | 692 | 315 | 306 | 41 | 14 | — | 35 |
| 1942..... | 1,036 | 690 | 334 | 295 | 36 | 23 | — | 56 |
| 1943..... | 969 | 687 | 307 | 300 | 35 | 32 | 2 | 64 |
| 1944..... | 909 | 646 | 295 | 297 | 35 | 31 | 1 | 55 |
| 1945..... | 970 | 602 | 321 | 293 | 41 | 31 | 1 | 65 |
| 1946..... | 890 | 542 | 350 | 304 | 57 | 41 | 1 | 64 |
| 1947..... | 898 | 545 | 351 | 267 | 59 | 44 | 1 | 69 |
| 1948..... | 953 | 563 | 355 | 297 | 65 | 46 | 1 | 70 |

^a Source: American Petroleum Institute.

The consumption of gasoline in Illinois for the past five years is shown in table 34.

An increase of 55 percent in consumption in 1947 over that of 1943 shows the effect of curtailment for civilian users during the war years.

NATURAL GAS

Production of natural gas in the United States has risen rapidly in recent years, and is now estimated at six trillion cu. ft. Of this, four trillion is marketed. This is approximately the equivalent of 160 million tons of coal. Details of production are shown in table 35.

TABLE 34.—GASOLINE CONSUMPTION IN ILLINOIS AND THE UNITED STATES
BY YEARS, 1943-1947^a
(In thousands of gallons)

| | 1943 | 1944 | 1945 | 1946 | 1947 |
|----------------------------------------------------------|------------|------------|------------|------------|------------|
| Illinois total..... | 1,164,583 | 1,166,325 | 1,273,244 | 1,643,919 | 1,810,447 |
| United States total..... | 21,649,477 | 24,333,689 | 24,435,108 | 30,078,673 | 32,735,201 |
| Percent of U. S. total consumed in Illinois in 1947..... | | | | | 5.5% |

^a Source: American Petroleum Institute.

TABLE 35.—GROSS PRODUCTION OF NATURAL GAS IN THE UNITED STATES
BY STATES, 1946^a
(In millions of cubic feet)

| State | Estimated production ^b | | |
|--------------------|-----------------------------------|----------------|-----------|
| | From gas wells | From oil wells | Total |
| Arkansas..... | 34,000 | 38,000 | 72,000 |
| California..... | 189,000 | 465,000 | 654,000 |
| Colorado..... | 6,900 | 2,500 | 9,400 |
| Illinois..... | 400 | 59,600 | 60,000 |
| Indiana..... | 600 | 1,420 | 2,020 |
| Kansas..... | 128,000 | 43,000 | 171,000 |
| Kentucky..... | 71,000 | 9,000 | 80,000 |
| Louisiana..... | 602,000 | 167,000 | 769,000 |
| Michigan..... | 23,800 | 2,200 | 26,000 |
| Mississippi..... | 1,900 | 19,840 | 21,740 |
| Missouri..... | 43 | — | 43 |
| Montana..... | 30,500 | 2,600 | 33,100 |
| New Mexico..... | 27,200 | 126,040 | 153,240 |
| New York..... | 6,280 | 250 | 6,530 |
| Ohio..... | 57,600 | 3,700 | 61,300 |
| Oklahoma..... | 240,200 | 198,600 | 438,800 |
| Pennsylvania..... | 88,900 | 4,300 | 93,200 |
| Texas..... | 2,074,900 | 980,000 | 3,054,900 |
| Utah..... | 4,320 | — | 4,320 |
| West Virginia..... | 193,500 | 7,000 | 200,500 |
| Wyoming..... | 26,000 | 23,700 | 49,700 |
| Other states..... | 457 | 10 | 467 |
| Total..... | 3,807,500 | 2,153,760 | 5,961,260 |

^a Source: U. S. Bureau of Mines.

^b Marketed production plus quantities used in repressuring, stored in ground, lost, and wasted.

The sources of natural gas received by the State of Illinois are shown in table 36.

TABLE 36.—SOURCES OF NATURAL GAS TRANSPORTED INTO ILLINOIS, BY STATES OF ORIGIN, 1946^a

| From | Millions of cubic feet |
|----------------|------------------------|
| Indiana..... | 6 |
| Kansas..... | 3,760 |
| Kentucky..... | 5 |
| Louisiana..... | 18,993 |
| Oklahoma..... | 3,909 |
| Texas..... | 80,445 |
| Total..... | 107,118 |

^a Source: U. S. Bureau of Mines.

TABLE 38.—CRUDE OIL PRICE CHANGES OCCURRING IN ILLINOIS, MAY 1, 1947 TO APRIL 30, 1948^a

| | Per barrel |
|-----------------------|------------------|
| March 15, 1947..... | \$1.82 to \$2.07 |
| October 15, 1947..... | \$2.07 to \$2.27 |
| December 1, 1947..... | \$2.27 to \$2.77 |

^a Source: National Petroleum News.

PRICES

Tables 37 and 38 show prices of oil and price changes during the year.

TABLE 37.—CRUDE OIL PRICES EFFECTIVE FEBRUARY 25, 1948^a

| Illinois—Indiana—Kentucky—Ohio | |
|--------------------------------------------------------------------------------|--------|
| Bowling Green, Ky. (Owensboro—Ashland) | \$2.57 |
| Butler Co., Ky. (Owensboro—Ashland).... | 2.77 |
| Cleveland, O. & Others (S. O. Ohio)..... | 3.10 |
| Clinton Co., Ky. (Ashland O. & T.)..... | 2.60 |
| Corning, O. (Seep)..... | 3.10 |
| Eastern Illinois (Ohio Oil) 1c below Schedule F | |
| Hitesville, Ky. & Others (Carter)..... | 2.77 |
| Illinois Basin (Ashland O. & R., Gulf, Magnolia, Ohio Oil, Sohio, Texaco)..... | 2.77 |
| Indiana Basin (Ashland O. & R., Sohio).... | 2.77 |
| Lima, O. (S. O. Ohio)..... | 2.90 |
| Loudon, Ill. (Carter)..... | 2.77 |
| Mattoon, Ill. (Carter)..... | 2.77 |
| Plymouth, Ill. (Ohio Oil)..... | 2.65 |
| Ragland Grade, Ky. (Ashland O. & T.).... | 2.43 |
| Somerset Grade, Ky. (Ashland O. & T.).... | 2.83 |
| Southern Illinois (Mohawk)..... | 2.77 |
| Western Kentucky (Sohio)..... | 2.77 |

^a Source: National Petroleum News, February 25, 1948.

STONE, ROCK PRODUCTS

LIMESTONE, DOLOMITE, AND MARL

The limestone and dolomite, which was sold or used by producers in 1947, amounted to 14,687,000 tons, valued at the plants at \$17,164,000. This was a decrease of 9.3 percent in amount and 2 percent in value from the previous year. The average

price per ton increased from \$1.08 to \$1.17 per ton. Details by kind and by use are given in tables 39 and 40, and are shown graphically in figure 12. No production of marl was reported for 1947.

Stone for metallurgical uses and flux, for limestone whiting, and for other industrial uses showed increases in both amount and

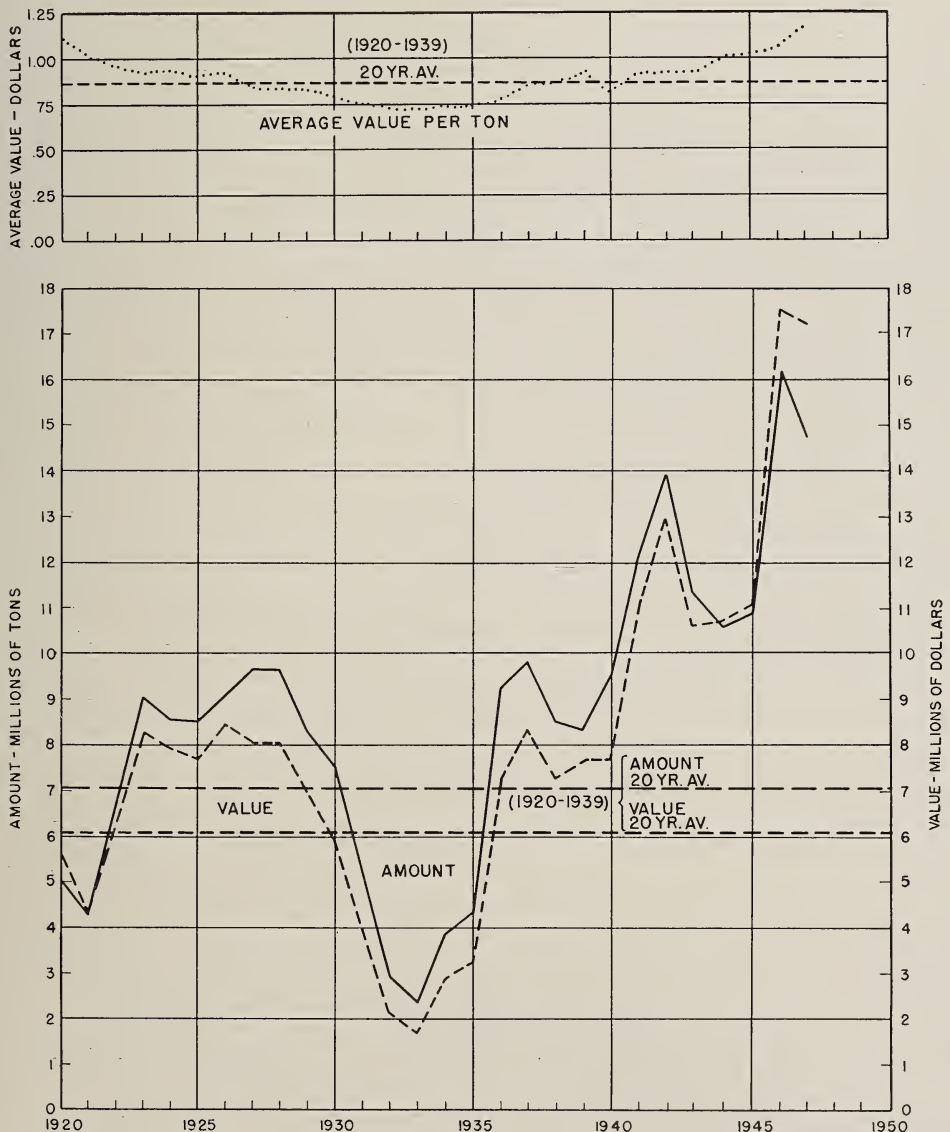


FIG. 12.—Annual production of limestone, dolomite, and marl in Illinois, 1920-1947.

TABLE 40.—LIMESTONE, DOLOMITE, AND MARL, BY KINDS AND BY USES, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1947^a

| Use | Type of operation | Limestone | | | Dolomite | | | | |
|------------------------------------|-------------------|---------------------|-------------|-----------------|----------|---------------------|-------------|-----------------|--------|
| | | Plants ^b | Amount tons | Value at plants | | Plants ^b | Amount tons | Value at plants | |
| | | | | Total | Avg. | | | Total | Avg. |
| <i>Industrial</i> | | | | | | | | | |
| Agstone..... | Commercial..... | 70 | 2,863,277 | \$3,799,221 | \$1.33 | 56 | 1,916,590 | \$2,216,515 | \$1.16 |
| Agstone-marl..... | Commercial..... | — | — | — | — | — | — | — | — |
| Agstone..... | Noncomm..... | 1 | 508 | 679 | 1.34 | — | — | — | — |
| Metallurgical and flux | Commercial..... | 4 | *390,937 | *501,471 | 1.28 | 5 | *719,928 | *863,899 | 1.20 |
| Chemical uses..... | Commercial..... | — | 35,954 | 65,440 | 1.82 | — | — | — | — |
| Limestone whitening..... | Commercial..... | 2 | *12,222 | *74,311 | 6.08 | — | — | — | — |
| Miscellaneous filler..... | Commercial..... | 5 | *56,607 | *227,649 | 4.02 | 2 | *40,299 | *73,559 | 1.83 |
| Other industrial uses..... | Commercial..... | 4 | *72,844 | *409,103 | 5.62 | 2 | *32,263 | *39,576 | 1.23 |
| Total industrial uses..... | Both..... | 71 | 3,432,349 | 5,077,874 | 1.48 | 57 | 2,709,080 | 3,193,549 | 1.18 |
| <i>Construction</i> | | | | | | | | | |
| Concrete and paving..... | Commercial..... | 44 | 2,627,387 | 2,872,512 | 1.09 | 31 | 4,358,526 | 4,587,226 | 1.05 |
| Concrete and paving..... | Noncomm..... | 4 | 67,055 | 74,121 | 1.11 | 5 | 508,873 | 403,711 | .79 |
| Railroad ballast..... | Commercial..... | 4 | 70,737 | 80,014 | 1.13 | 11 | 635,509 | 536,424 | .84 |
| Riprap..... | Commercial..... | 15 | 55,099 | 70,200 | 1.27 | 4 | 21,889 | 27,242 | 1.24 |
| Rough construction and rubble..... | Commercial..... | — | (j) | (j) | — | — | (j) | (j) | — |
| Rough construction and rubble..... | Noncomm..... | 1 | 200 | 400 | 2.00 | — | — | — | — |
| Flagging..... | Commercial..... | 4 | 1,792 | 3,055 | 1.70 | 5 | 4,117 | 9,460 | 2.30 |
| Other construction uses..... | Commercial..... | 4 | *153,482 | *183,747 | 1.20 | 3 | 140,737 | 144,650 | 1.10 |
| Total construction uses..... | Both..... | 49 | 2,975,752 | 3,284,049 | 1.10 | 34 | 5,569,651 | 5,608,713 | 1.01 |
| Total operations..... | Commercial..... | 71 | 6,340,338 | 8,286,723 | 1.31 | 61 | 7,769,858 | 8,398,551 | 1.08 |
| Total operations..... | Noncomm..... | 5 | 67,763 | 75,200 | 1.11 | 5 | 508,873 | 403,711 | .79 |
| Total stone..... | Both..... | 76 | 6,408,101 | \$8,361,923 | \$1.30 | 66 | 8,278,731 | \$8,802,262 | \$1.06 |

^a Summary of joint canvasses made by Illinois Geological Survey and U. S. Bureau of Mines.^b Number of plants reporting production.^c Includes stone for aluminum refining and flux for blast furnaces.^d Includes refractory dolomite for open-hearth and flux for blast furnaces.^e Includes limestone whitening for kalsomine, pottery, tooth paste, and for paint, putty, rubber, and other fillers.^f Includes pulverized stone for asphalt, fertilizer, caulking compounds, dynamite, insecticides, insulation, wall and picture-frame mouldings, and other fillers.^g Includes pulverized stone for lime manufacturing, mineral food, and dust for coal mines.^h Includes stone for regrinding, and dust for coal mines.ⁱ Includes stone sand, and sand for unspecified uses.^j Includes stone sand, and sand for unspecified uses.^k Includes stone sand, and sand for unspecified uses.^l Includes chips for driveways, stone for filling and filter beds, and stone sand.

value, ranging from 2.7 percent to 8.2 percent in amount, and from 14.9 percent to 28.2 percent in value. Miscellaneous filler, other than asphalt filler, declined 50.3 percent in amount, but increased 20.7 percent in value; concrete and paving, non-commercial operations, showed a small decrease in amount, and a slight increase in value. All other uses declined in both quantity and value.

As in 1946, a large majority of the producers indicated that the demand, especially for agstone, far exceeded the supply. Others stated that although demand for agstone continued strong, crushed stone sales declined. Many producers reported that acute labor shortage, together with higher wages and rising costs of supplies and equipment, had curtailed production. In other instances unfavorable weather conditions and floods hindered both production and sales. Several of the smaller plants closed down, a few permanently and others temporarily. Some new operations were reported, and others changed ownership.

COMMERCIAL AND NONCOMMERCIAL OPERATIONS

Commercial operations are shown separately from noncommercial operations, which include the following: State of Illinois, counties, townships, municipalities, and other government agencies. Purchases by government agencies from commercial producers are included in commercial operations.

Noncommercial operations in 1947 decreased 1.5 percent in amount from the previous year, and produced 3.9 percent of the total tonnage of stone in Illinois in 1947. Practically all of this stone was used for concrete and paving.

AGSTONE USED IN ILLINOIS IN 1947

Reports of producers to the Illinois Geological Survey show that the amount of agstone (ground limestone and dolomite) used for soil improvement in Illinois during 1947 amounted to more than 5,180,000 tons (table 41). This was 412,000 tons

less than that used in 1946, but there was an increase of 11 cents per ton, or approximately 11 percent in value over 1946. Even with this decrease in tonnage, Illinois continued to rank first among all the states in the amount of liming material used for soil treatment.

The value of agstone for improving soil fertility is now a well established fact. During 1947 the demand for this mineral material continued strong and far exceeded the supply. The total quantity of agstone used in Illinois during 1947 amounted to 7.4 percent less than that of the previous year. That produced in Illinois and marketed in other states declined 40.7 percent, while the amount produced in other states and used in Illinois increased 26.5 percent (table 41).

Of the 187 plants reporting on 1947 operations, 9 percent had discontinued operations, 2 percent changed ownership, and 19 percent were idle. Table 42 shows the use of agstone on Illinois farms during the years for which figures are available. During the ten-year period from 1927 to 1936, the amount used annually increased 72 percent; during the ten-year period from 1937 to 1946 the increase was 408 percent, and for the eleven-year period from 1937 to 1947, 395 percent. This remarkable growth is shown graphically in figure 13.

During 1947 agstone was produced in 47 of the 102 counties of the State. Of the total used during the year, 90.5 percent was produced in Illinois.

CEMENT

During 1947 sales of cement by producers in Illinois amounted to 7,516,000 barrels, valued at the plants at \$14,165,000. This was an increase of 6.3 percent in amount and 14 percent in value over 1946. The largest percentage increase was in "Other special Portlands" (low-heat, waterproof-Portland, and air-entrained cements). High early-strength was the only cement which declined in both amount and value, as shown in table 43.

The quantity of cement sold or used by producers in Illinois in 1947 attained the

TABLE 41.—AGSTONE USED IN ILLINOIS, 1946-1947^a

| | 1946* | | | | 1947 | | | | |
|----------------------------------------------------|---------------------|-------------|-----------------|--------|---------------------|-------------|-----------------|--------|------------------------------------|
| | Plants ^b | Amount tons | Value at plants | | Plants ^b | Amount tons | Value at plants | | Percent change in amount from 1946 |
| | | | Total | Av. | | | Total | Av. | |
| Produced in Illinois | | | | | | | | | |
| Limestone..... | 76 | 3,070,813 | \$3,604,121 | \$1.17 | 71 | 2,863,785 | \$3,799,900 | \$1.33 | - 6.7 |
| Dolomite..... | 67 | 2,283,195 | 2,471,340 | 1.08 | 56 | 1,916,590 | 2,216,515 | 1.16 | -16.1 |
| Marl..... | 2 | 5,460 | 7,135 | 1.31 | — | — | — | — | — |
| Total produced in Illinois..... | 145 | 5,359,468 | 6,082,596 | 1.13 | 127 | 4,780,375 | 6,016,415 | 1.26 | -10.8 |
| Less marketed in other states..... | 13 | 154,648 | 167,531 | 1.08 | 14 | 91,663 | 112,348 | 1.23 | -40.7 |
| Produced and used in Illinois..... | 145 | 5,204,820 | 5,915,065 | 1.13 | 127 | 4,688,712 | 5,904,067 | 1.26 | - 9.9 |
| Produced in other states and used in Illinois..... | 11 | 390,879 | 347,182 | .89 | 12 | 494,357 | 488,620 | .99 | +26.5 |
| Total agstone used in Illinois..... | 156 | 5,595,699 | \$6,262,247 | \$1.12 | 139 | 5,183,069 | \$6,392,687 | \$1.23 | - 7.4 |

* Revised figures.

^a Summary of canvass made by Illinois Geological Survey, in cooperation with Illinois Agricultural Association and Midwest Limestone Institute.^b Number of plants reporting production.

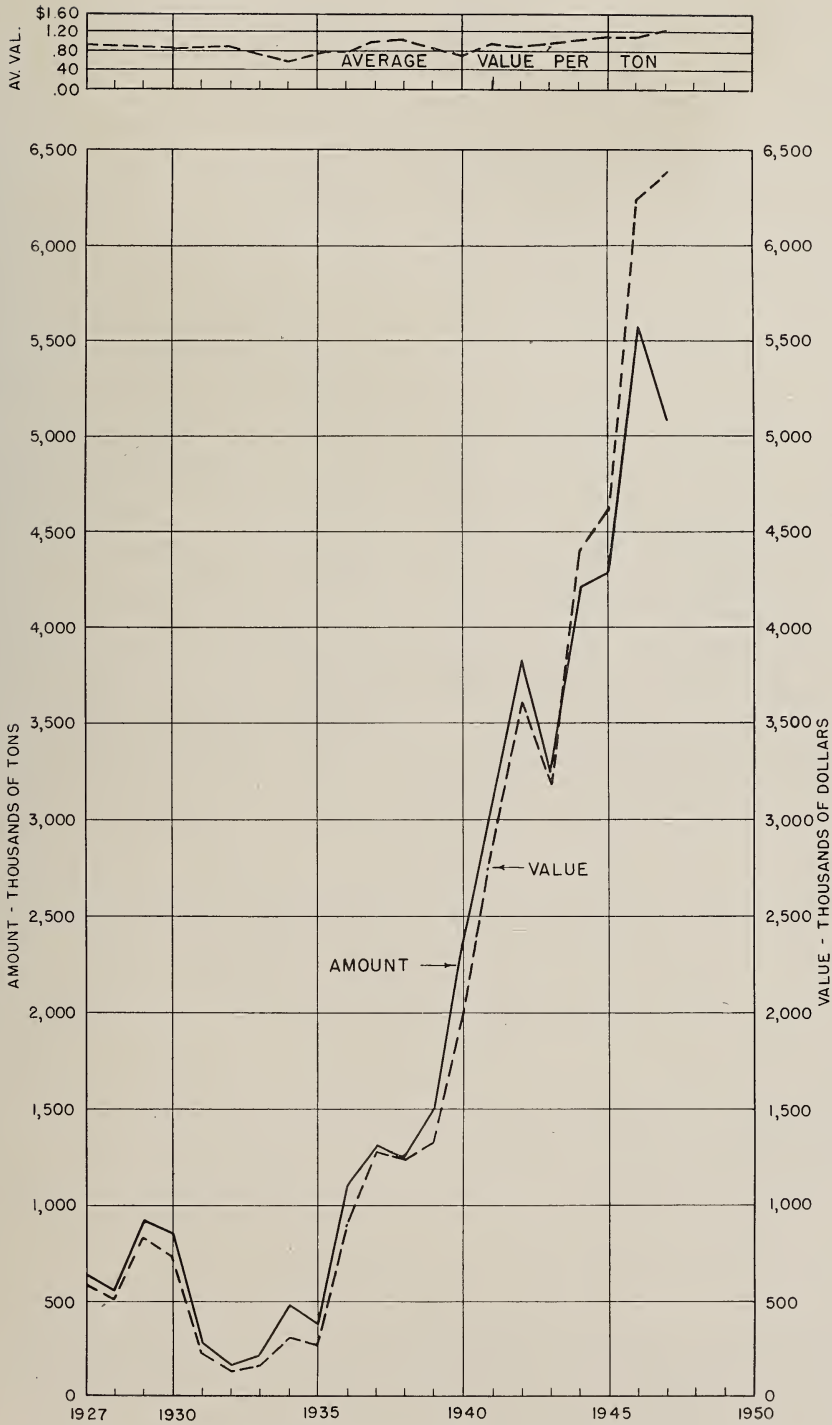


FIG. 13.—Annual use of agstone in Illinois, 1927-1947.

TABLE 42.—AGSTONE USED IN ILLINOIS ANNUALLY,
1927-1947^a

| Year | Tons | Value | Av. price per ton |
|-----------|------------|------------|-------------------------|
| 1927..... | 647,155 | \$ 579,639 | \$0.90 |
| 1928..... | 565,001 | 511,005 | .91 |
| 1929..... | 947,798 | 843,693 | .89 |
| 1930..... | 868,426 | 740,785 | .86 |
| 1931..... | 268,874 | 241,376 | .90 |
| 1932..... | 164,933 | 140,969 | .86 |
| 1933..... | 227,466 | 165,667 | .73 |
| 1934..... | 491,644 | 319,604 | .65 |
| 1935..... | 379,555 | 268,139 | .71 |
| 1936..... | 1,114,466 | 871,862 | .78 |
| 1937..... | 1,310,513 | 1,279,981 | .97 |
| 1938..... | 1,251,263 | 1,247,150 | 1.00 |
| 1939..... | 1,497,458 | 1,318,173 | .88 |
| 1940..... | 2,365,663 | 1,999,850 | .84 |
| 1941..... | 3,084,855 | 2,873,536 | .93 |
| 1942..... | 3,866,568 | 3,600,313 | .93 |
| 1943..... | 3,236,477 | 3,175,108 | .98 |
| 1944..... | 4,214,600 | 4,388,886 | 1.04 |
| 1945..... | 4,287,568 | 4,627,705 | 1.08 |
| 1946..... | *5,595,699 | *6,262,247 | 1.12 |
| 1947..... | 5,183,069 | 6,392,687 | 1.23 |

* Revised figures.

^a U. S. Bureau of Mines, 1927-29; canvass by Illinois
Agriculture Association, 1930; canvass by Illinois
Geological Survey, 1931-1947.

highest figure since 1930 when shipments established an all-time high record (fig. 14).

LIME

Sales of lime by producers in Illinois in 1947 amounted to 223,800 tons, valued at the plants at \$1,961,400, as shown in table 44. These figures represent the output of five plants, as against that of seven plants which reported in 1946. Two plants did not report 1947 production statistics. Of the tonnage sold in 1947, 85.4 percent was quicklime and sintered dolomite, and 14.6 percent was hydrated lime.

Total lime decreased 20.1 percent in amount and 17.1 percent in value from 1946, while the average price increased 31 cents per ton. Quicklime and sintered dolomite decreased 20.6 percent in amount and 18.1 percent in value from the previous year, and hydrated lime declined 17 percent from 1946 in both amount and value. The average price of quicklime and sintered dolomite showed an increase of 27 cents per ton, and hydrated lime increased 60 cents per ton.

TABLE 43.—PORTLAND CEMENT SOLD OR USED

| Line No. | Kind | 1945 | | | |
|-------------|-------------------------------------------------------------------|---------------------|------------------------------|-----------------|--------|
| | | Plants ^b | Amount bbls. ^c | Value at plants | |
| | | | | Total | Av. |
| 1 | Standard Portland cement | | | | |
| | General use and moderate-heat..... | 4 | 3,753,362 | \$6,259,802 | \$1.67 |
| 2 | Special Portland cements | | | | |
| | High-early-strength..... | 4 | 269,194 | 547,558 | 2.03 |
| 3 | Other special Portlands ^d | 3 | 166,893 | 281,758 | 1.69 |
| 4 | Total Portland cement..... | 4 | 4,189,449 | 7,089,118 | 1.69 |
| 5 | Less cement used in manufacture of masonry or mortar cements..... | 4 | 108,105 | 182,697 | 1.69 |
| 6 | Total..... | 4 | 4,081,344 | 6,906,421 | *1.69 |
| 7 | Masonry or mortar cements..... | 4 | 428,588 | 748,455 | 1.74 |
| 8 | Total cement..... | 4 | 4,509,932 | \$7,654,876 | \$1.70 |

Sales of quicklime for chemical and industrial uses increased 91.8 percent in amount and 105.5 percent in value over 1946. Under this classification is included lime for water purification and softening, sewage and trade-wastes treatment, insecticides, fungicides and disinfectants, petroleum refining, tanneries, glue, grease, paper manufacturing, and for other purposes.

Annual shipments of lime by producers in Illinois are shown graphically in figure

14, beginning with 1920, compared to the 20-year average which is based on shipments for 1920-1939 inclusive.

GANISTER AND SANDSTONE

Ganister is a siliceous material found in Union and Alexander counties of southern Illinois. It is used for refractory purposes. Sales of this material in 1947 increased 89.2 percent in amount and 85.4 percent in value from the previous year.

BY PRODUCERS IN ILLINOIS, 1945-1947^a

| 1946* | | | | 1947 | | | | | Line No. |
|---------------------|---------------------------|-----------------|--------|---------------------|---------------------------|-----------------|--------|------------------------------------|----------|
| Plants ^b | Amount bbls. ^c | Value at plants | | Plants ^b | Amount bbls. ^c | Value at plants | | Percent change in amount from 1946 | |
| | | Total | Av. | | | Total | Av. | | |
| 4 | 5,713,335 | \$9,842,744 | \$1.72 | 4 | 5,865,270 | \$10,736,539 | \$1.83 | + 3.7 | 1 |
| 4 | 265,410 | 582,447 | 2.11 | 4 | 248,045 | 569,048 | 2.29 | — 6.6 | 2 |
| 3 | 696,839 | 1,221,556 | 1.75 | 3 | 1,040,645 | 1,913,673 | 1.84 | +49.3 | 3 |
| 4 | 6,675,584 | 11,646,747 | 1.74 | 4 | 7,153,960 | 13,219,260 | 1.85 | + 7.1 | 4 |
| 3 | 112,028 | 194,929 | 1.74 | 4 | 214,392 | 396,625 | 1.85 | +91.4 | 5 |
| 4 | 6,563,556 | 11,451,818 | 1.74 | 4 | 6,939,568 | 12,822,635 | 1.85 | + 5.7 | 6 |
| 4 | 506,223 | 970,150 | 1.92 | 4 | 576,387 | 1,342,341 | 2.34 | +13.9 | 7 |
| 4 | 7,069,779 | \$12,421,968 | \$1.76 | 4 | 7,515,955 | \$14,164,976 | \$1.88 | + 6.3 | 8 |

* Revised figures.

^a Compiled from canvass made by U. S. Bureau of Mines.

^b Number of plants reporting production.

^c Weight per bbl. 376 lbs.

^d Includes air-entrained, low-heat, and waterproof-Portland cements.

TABLE 44.—LIME SOLD OR USED BY PRODUCERS IN ILLINOIS, 1946-1947^a

| Kind and use | 1946 [*] | | | | 1947 | | | |
|-----------------------------------------------|---------------------|-------------|-----------------|---------|------------------|------------------|---------|------------------------------------|
| | Plants ^b | Amount tons | Value of plants | | Amount tons | Value of plants | | Percent change in amount from 1946 |
| | | | Total | Av. | | Total | Av. | |
| <i>Quicklime and sintered dolomite</i> | | | | | | | | |
| Building lime..... | 4 | 14,058 | \$ 187,253 | \$13.32 | 12,969 | \$ 133,871 | \$10.32 | - 7.7 |
| Sintered dolomite and metallurgical lime..... | 6 | 180,186 | 1,501,310 | 8.33 | 89,202 | 826,051 | 9.26 | -50.5 |
| Water and sewage treatment..... | 4 | 15,659 | 118,674 | 7.58 | (^c) | (^c) | — | — |
| Other chemical and industrial uses..... | 3 | 30,684 | 224,262 | 7.31 | 88,890 | 704,809 | 7.93 | +91.8 |
| Total..... | 7 | 240,587 | 2,031,499 | 8.44 | 191,061 | 1,664,731 | 8.71 | -20.6 |
| <i>Hydrated lime</i> | | | | | | | | |
| Building lime..... | 4 | 5,140 | 49,543 | 9.64 | 1,463 | 13,280 | 9.07 | -71.5 |
| Water treatment..... | 4 | 19,979 | 167,015 | 8.36 | (^c) | (^c) | — | — |
| Other chemical and industrial uses..... | 3 | 14,345 | 117,398 | 8.19 | 31,292 | 283,426 | 9.06 | - 8.3 |
| Total..... | 4 | 39,464 | 333,956 | 8.46 | 32,755 | 296,706 | 9.06 | - 7.0 |
| Total lime..... | 7 | 280,051 | \$2,365,455 | \$8.45 | 223,816 | \$1,961,437 | \$8.76 | -20.1 |

* Revised figures.

^a Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.^b Number of plants reporting production.^c Included in "Other chemical and industrial uses."

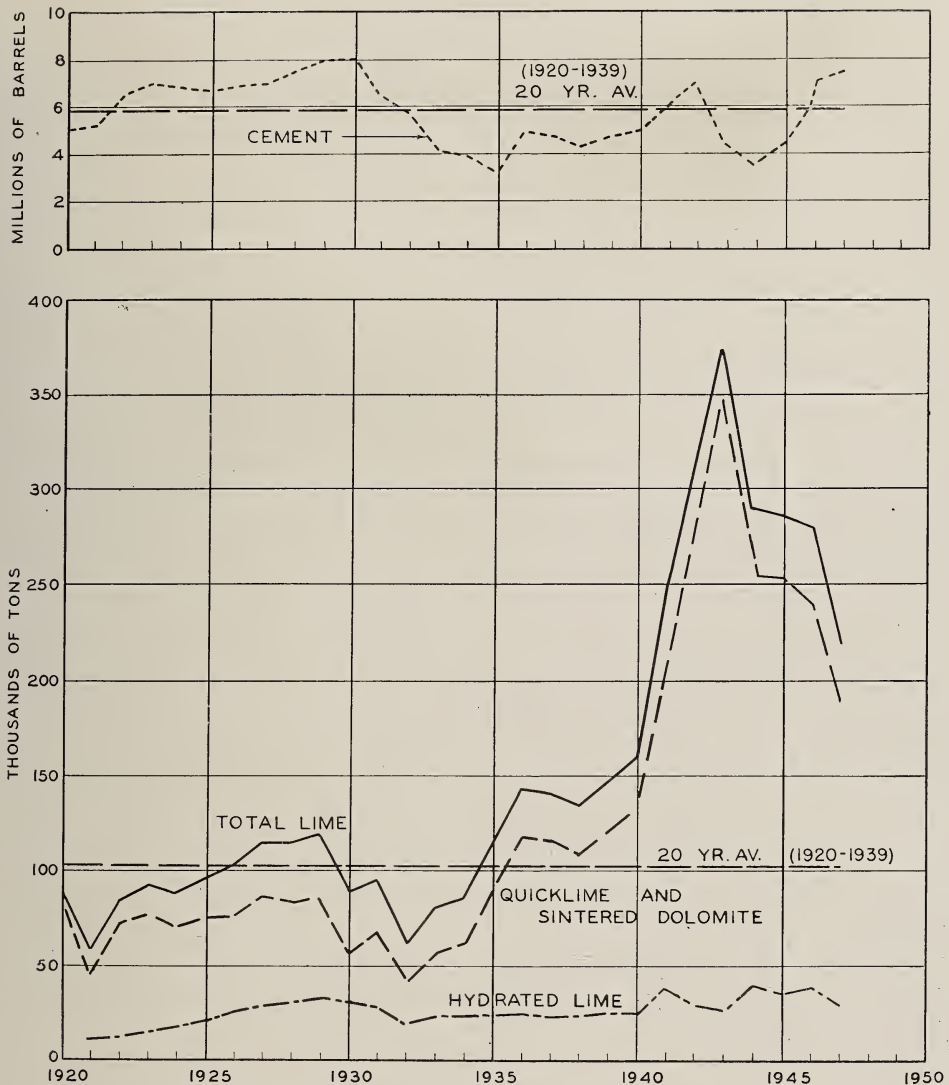


FIG. 14.—Annual shipments of cement and lime by producers in Illinois, 1920-1947.

Sandstone and miscellaneous stone are produced in various parts of the State for road work, and for foundations, riprap, and rubble, mostly by noncommercial operations. During 1947 sales increased 95.8 percent in amount over 1946, and 66.4 percent in value. Sandstone used for road work accounted for this large increase.

Total sales and uses of ganister, sandstone, and miscellaneous stone by producers in Illinois are given in table 45. They show an increase of 95.5 percent in amount and 72.1 percent in value over 1946.

TABLE 45.—GANISTER AND SANDSTONE SOLD OR USED BY PRODUCERS IN ILLINOIS, 1943-1947^a

| Year | Amount tons ^b | Value at plants | |
|-----------|--------------------------|-----------------|--------|
| | | Total | Av. |
| 1943..... | 1,045 | \$ 9,376 | \$3.18 |
| 1944..... | 548 | 4,774 | 8.71 |
| 1945..... | 8,573 | 10,791 | 1.26 |
| 1946..... | 8,336 | 10,900 | 1.30 |
| 1947..... | 16,299 | 18,757 | 1.15 |

^a Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

^b Includes ganister for refractory purposes and sandstone for road work, and for foundations, riprap, and rubble.

CLAYS, CLAY PRODUCTS

Clays and clay products (including fuller's earth and silica refractories), sold and shipped by producers in Illinois in 1947, were valued at the plants at \$33,743,000, an increase of 2 percent over 1946, and retained the position as the third largest mineral industry in Illinois, ranking next to coal and petroleum.

CLAYS, INCLUDING FULLER'S EARTH

In 1947 clays (including fuller's earth), which were sold and shipped as such, amounted to 238,800 tons, valued at the mines or pits at \$1,002,200, an increase of 15.7 percent in quantity and 13.9 percent in value over the previous year, as shown in table 46. Clays used by their producers in the manufacture of clay products at their own plants are not included, but are reported in the resultant clay products in table 47.

Total clays (except fuller's earth), which were sold and shipped as such, increased 16.1 percent in amount and 5.2 percent in value over 1946. Kaolin, shale, and surface clay are grouped under one heading because there were less than three producers reporting sales of each of these types of clay, and separate figures could not be shown without revealing individual operations. Sales of fire clay totaled 168,400 tons, valued at the plants at \$552,600, an increase of 16.5 percent in amount and 5.3 percent in value over the previous year. Sales of stoneware clay decreased 52.7 percent in amount and 40.7 percent in value, but the average price per ton was 44 cents more than in 1946.

Fuller's earth sold and used by producers in Illinois during 1947 amounted to 37,740 tons and was valued at the plants at \$388,955, an increase of 13.9 percent in amount and 31.1 percent in value over the previous year. Approximately 70 percent of this amount was used for oil refining. Other uses were for fillers and bonding foundry sands, and for oil absorbents, which showed an increase of 69 percent in amount and 98 percent in value over 1946.

Ceramic uses of clays sold and shipped as such in 1947 amounted to 169,200 tons, valued at the mines or pits at \$444,400, an increase of 20.6 percent in quantity and 30.9 percent in value over the preceding year. These clays for ceramic purposes comprised 70.9 percent in amount and 44.3 percent in value of the total clays sold and shipped in 1946. The largest ceramic use was for refractories which represented 64.5 percent of the tonnage and 63.3 percent of value of clays thus used.

Nonceramic uses of clays in 1947 totaled 69,600 tons, valued at the plants at \$557,800, an increase of 5.4 percent in amount and 3.2 percent in value over the previous year. These uses included bonding foundry sands and fillers.

CLAY PRODUCTS, INCLUDING SILICA
REFRACTORIES

Clay products (including silica refractories), sold and shipped by producers in Illinois in 1947 were valued at the plants at \$32,740,700, an increase of 1.7 percent over 1946, and the highest value since 1927 when total sales of clay products amounted to \$34,452,600. Refractories represented 22 percent of the value of clay products sold, a gain of 6 percent over 1946; whiteware and pottery sales comprised 39 percent, one percent more than in the previous year, while structural clay products, also amounting to 39 percent of the total value, showed a decrease of 7 percent from 1946 (table 47).

REFRACTORIES

Refractories, clay and silica, totaled 253,400 tons, valued at the plants at \$7,074,800, an increase of 21.4 percent in amount and 36.8 percent in value over 1946, an average rise of \$3.11 per ton. Fire brick and shapes increased 20.8 percent in tonnage and 41.5 percent in value over the previous year, and comprised 84.9 percent of the amount and 85.5 percent of the value of the total sales of refractory products.

TABLE 47.—CLAY PRODUCTS (INCLUDING SILICA REFRACTORIES) SOLD AND SHIPPED BY PRODUCERS IN ILLINOIS, 1946-1947^a

| Kind and use | 1946 | | | | 1947 | | | |
|-------------------------------------------------|---------------------|-------------------|-----------------|---------|---------------------|-------------------|-----------------|---------|
| | Plants ^b | Amount | Value at plants | | Plants ^b | Amount | Value at plants | |
| | | | Total | Average | | | Total | Average |
| <i>Refractories, clay and silica</i> | | | | | | | | |
| Firebrick and shapes..... | 7 | tons 178,135 | \$ 4,277,938 | \$24.02 | 8 | tons 215,155 | \$ 6,053,689 | \$28.14 |
| Plastic and castable refractories..... | 4 | 11,671 | 465,080 | 39.84 | 4 | 12,271 | 455,365 | 37.11 |
| Cements and mortars..... | 6 | 7,089 | 313,052 | 44.16 | 6 | 7,678 | 373,938 | 48.70 |
| Other refractories..... | 5 | 11,907 | 114,718 | 9.63 | 4 | 18,304 | 191,782 | 10.48 |
| Total refractories..... | 10 | 208,802 | 5,170,788 | 24.81 | 10 | 253,408 | 7,074,774 | 27.92 |
| <i>Structural clay products</i> | | | | | | | | |
| Common brick..... | 29 | thous. 459,700 | 8,164,736 | 17.76 | 27 | 324,602 | 5,346,270 | 16.47 |
| Face brick..... | 16 | 128,604 | 3,048,626 | 23.71 | 19 | 137,740 | 3,406,549 | 24.73 |
| Paving block..... | 1 | 206 | 6,239 | 30.29 | 2 | 1,253 | 44,210 | 35.29 |
| Total (in equivalent tons)..... | 34 | tons 1,470,750 | 11,219,601 | 7.63 | 32 | tons 1,160,241 | 8,797,029 | 7.58 |
| Drain tile..... | 16 | 88,669 | 831,729 | 9.38 | 16 | 116,191 | 1,313,714 | 11.31 |
| Structural tile..... | 12 | 80,276 | 696,015 | 8.67 | 17 | 73,480 | 710,179 | 9.66 |
| Sewer pipe, flue lining, wall coping..... | 3 | 26,752 | 726,025 | 27.14 | 3 | 33,212 | 974,429 | 29.34 |
| Terra cotta and glazed block ^e | — | — | — | — | — | — | — | — |
| Other structural products..... | 4 | 85,981 | 1,278,884 | 14.87 | 7 | 92,655 | 1,010,947 | 10.91 |
| Total structural products..... | 50 | 1,752,428 | 14,752,254 | 8.42 | 47 | 1,475,779 | 12,806,298 | 8.68 |
| <i>Whiteware and pottery</i> | | | | | | | | |
| Flowerpots..... | 2 | — | 174,000 | — | 3 | — | 321,932 | — |
| Stoneware and kitchenware..... | 4 | — | 1,463,820 | — | 4 | — | 1,477,321 | — |
| Garden pottery..... | 1 | — | 1,260,000 | — | — | — | (d) | — |
| Dinnerware and art china..... | 3 | — | 470,300 | — | 3 | — | 216,229 | — |
| Art pottery..... | 5 | — | 2,697,917 | — | 5 | — | 2,897,680 | — |
| Vitreous-china plumbing fixtures..... | 3 | — | 5,013,504 | — | 3 | — | 6,454,944 | — |
| Porcelain and other whiteware..... | 3 | — | 1,194,783 | — | 2 | — | 1,491,557 | — |
| Total whiteware and pottery..... | 16 | — | 12,274,324 | — | 16 | — | 12,859,663 | — |
| Total clay products..... | 75 | — | 32,197,366 | — | 72 | — | 32,740,735 | — |
| Total clays and clay products..... | 82 | — | *\$33,077,212 | — | 79 | — | \$33,742,955 | — |
| (Tables 46 and 47) | | | | | | | | |

* Revised figures.

^a Summary of canvass made by Illinois Geological Survey.^b Number of plants reporting production.^c Included in "Other structural products."^d Included in "Dinnerware and art china."

STRUCTURAL CLAY PRODUCTS

Structural clay products amounted to 1,475,800 tons, valued at the plants at \$12,806,300, a decrease of 15.8 percent in amount and 13.2 percent in value from 1946, though the average value per ton increased 26 cents. These decreases reflected, in part, the lessening demand for types of construction using certain structural clay products.

Common brick sold were valued at the plants at \$5,346,300 and showed a decline of 34.5 percent in value from 1946. This represented an average decrease in price of \$1.29 per thousand from the previous year.

Face brick sold in 1947 totaled \$3,406,500. This was an increase of 11.7 percent in value over 1947, and averaged a gain of \$1.02 per thousand.

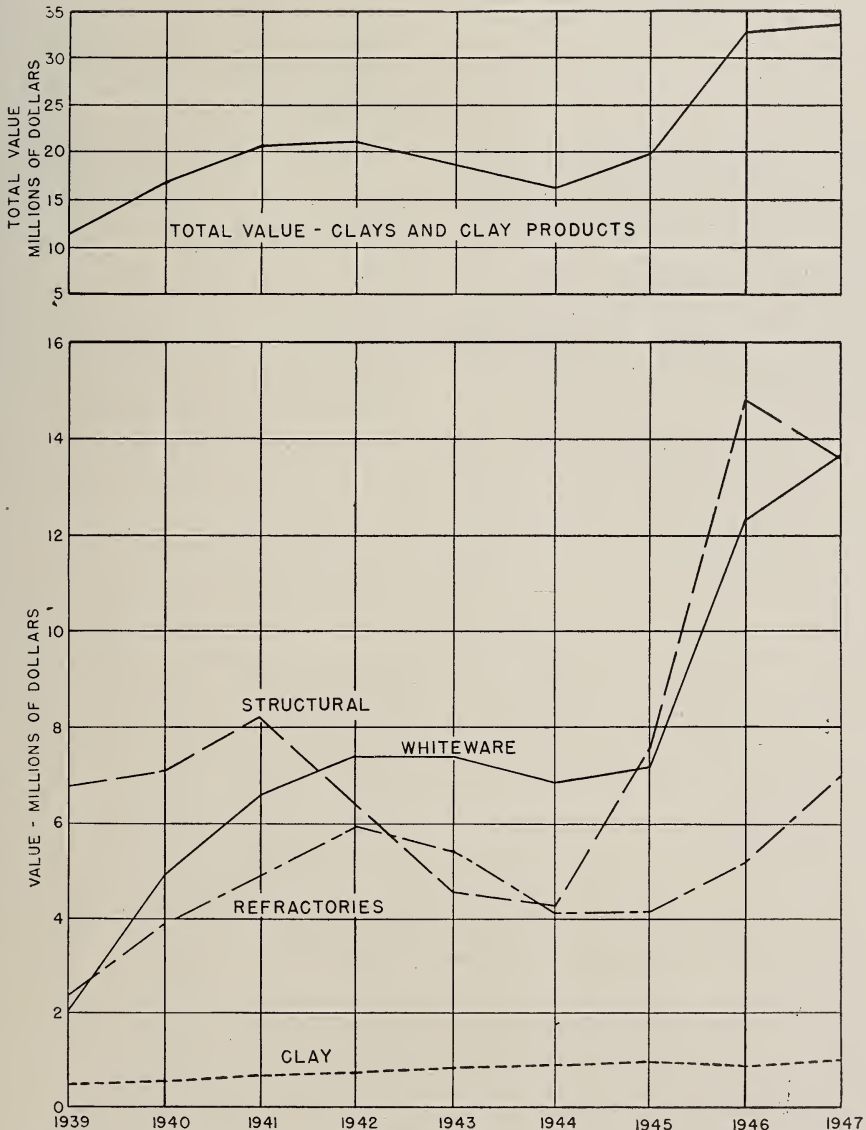


FIG. 15.—Value of annual sales of clays and clay products by producers in Illinois, 1939-1947.

Drain tile sold in 1947 amounted to 116,200 tons, valued at the plants at \$1,313,700, an increase of 31 percent in amount and 57.9 percent in value over 1946.

Structural tile sales totaled 73,500 tons and were valued at \$710,200. This was a decrease of 8.5 percent in tonnage from 1946 and an increase of 2 percent in value.

Other structural products included facing block, haydite, terra cotta, and glazed block. These products were valued at \$1,010,900 and showed a decrease of 21 percent from 1946.

WHITEWARE AND POTTERY

Whiteware and pottery sold and shipped by producers in Illinois in 1947 were valued at \$12,859,700. This exceeded by 4.8 percent the all-time high record of whiteware and pottery sales established in 1946.

Flowerpots, valued at \$321,900, showed an increase of 85 percent, the largest percentage increase in value in the whiteware and pottery group.

Stoneware and kitchenware were valued at \$1,477,300 and showed a slight gain of 1 percent.

Art china, dinner ware, and garden pottery are grouped under one heading as there were less than three producers reporting sales of each of these products, and separate figures could not be shown without revealing individual operations.

Art pottery sold in 1947 was valued at \$2,897,700, an increase of 7.4 percent over 1946.

Vitreous china plumbing fixtures valued at \$6,454,900 showed a gain of 28.8 percent over the previous year and amounted to 50 percent of the total sales of whiteware for 1947.

Other whiteware and pottery included electric porcelain, chemical stoneware and miscellaneous products. Valued at \$1,491,500, these showed an increase of 24.8 percent.

Value of annual sales of clays and clay products by producers in Illinois for the years 1939-1947 are shown graphically in figure 15.

SAND AND GRAVEL

SILICA SAND

The amount of silica sand sold or used by producers in Illinois in 1947 was 2,533,800 tons, valued at the plants at \$4,351,200, as shown in table 48. This was an increase of 12.3 percent in amount and 27.7 percent in value, an average increase of 21 cents per ton over 1946. Illinois ranks first among all the states in the production of this mineral material.

Silica sand is used almost entirely for industrial purposes, and in 1947 only slightly more than 1 percent of that sold or used by producers in Illinois was for construction work. Steel molding sand declined 6.6 percent in amount but increased 13.8 percent in value, an average increase of 26 cents per ton. All other uses of silica sand showed substantial increases over the previous year in both amount and value.

OTHER SAND AND GRAVEL

Sand (other than silica sand) and gravel, sold or used by producers in Illinois in 1947, amounted to 12,972,400 tons, and was valued at the plants at \$8,028,700. This was a decrease of 14 percent in amount and 7.3 percent in value from 1946.

According to producer reports several factors accounted for this decrease. Wage increases, the higher cost of supplies, repairs for current equipment, and the purchase of new equipment cut profits and forced prices up. In some instances bids were rejected or projects were curtailed or deferred to a later date. High water retarded production at some plants. In a few areas demand was reported greater than the supply, but the general comment was that the demand was slow and wages and prices high. An increase in demand is anticipated for 1948.

Of the total tonnage of sand (other than silica sand) and gravel reported in 1947, 7 percent was from government-and-contractor operations, which includes the State of Illinois, counties, townships, and municipalities, produced either by themselves or by contractors expressly for their use. Purchases by government agencies from commercial producers are included in commercial operations.

"Other sand" amounted to 4,536,900 tons and was valued at the plants at \$3,110,800, a decrease of 6.1 percent from 1946. Railroad-ballast sand showed the largest increase in tonnage, 81,300 tons, or 49.8 percent, with an increase in value of 80.1 percent.

Increases in both amount and value were shown for natural-bonded molding sand, structural sands, commercial operations, and paving and highway-structures sand, government - and - contractor operations. Sand for all other uses showed decreases in amount and value from 1946, except engine sand which declined 11.5 percent in amount but increased 16.1 percent in value over the previous year (table 49).

Gravel comprised 70 percent of the total quantity of "Other sand and gravel" sold or used by producers in Illinois in 1947. It amounted to 8,435,500 tons and was valued at the pits at \$4,918,000, showing a decrease of 17.8 percent in amount and 15.3 percent in value from the previous year. Structural gravel, government-and-contractor operations, increased more than 300 percent in amount and value over 1946, and railroad-ballast sand increased 11.7 percent in amount and 19.9 percent in value. Gravel for all other uses showed decreases from the previous year in both amount and value (table 49).

Total sand (including silica sand) and gravel amounted to 15,506,200 tons, valued at \$12,380,000, a decrease of 10.6 percent in amount and an increase of 2.6 percent in value over 1946. This exceeds in value the former high record established in the previous year when sand and gravel sold or used by producers in Illinois were valued at \$12,068,900.

Of the 194 plants reporting on 1947 op-

erations, 8 percent had discontinued business during the year, 22 percent were idle, and 70 percent reported production. Five new plants were opened, and several changed ownership.

Annual production and value of sand (including silica sand) and gravel in Illinois is shown graphically in figure 16 for each year since 1920. The average value per ton for each year is also given.

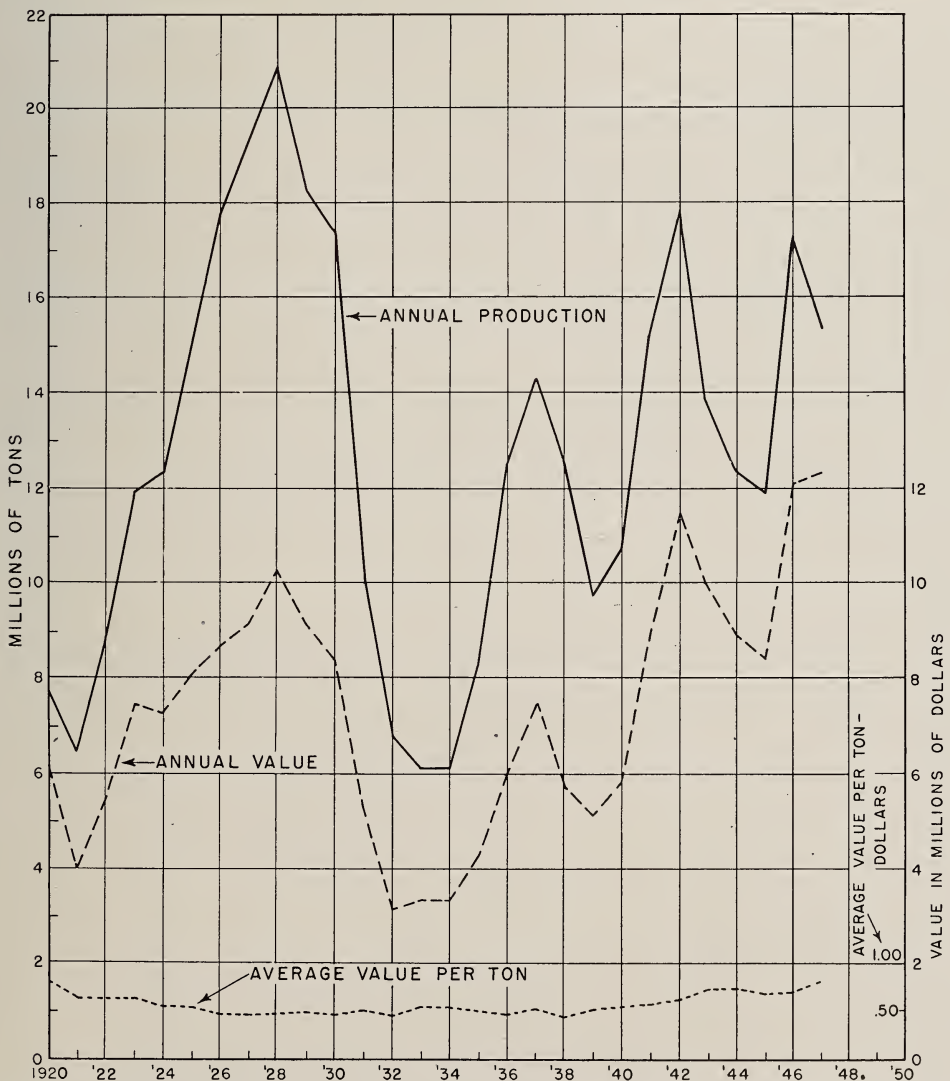


FIG. 16.—Annual production and value of sand (including silica sand) and gravel in Illinois, 1920-1947.

TABLE 49.—SAND (OTHER THAN SILICA SAND) AND GRAVEL SOLD OR USED BY PRODUCERS IN ILLINOIS, 1946-1947^a

| Kind and use | Type of operation | 1946* | | | | 1947 | | | | Percent change in amount from 1946 | |
|------------------------------------------|-------------------|---------------------|-------------|-----------------|--------|---------------------|-------------|-----------------|--------|------------------------------------|--|
| | | Plants ^b | Amount tons | Value at plants | | Plants ^b | Amount tons | Value at plants | | | |
| | | | | Total | Av. | | | Total | Av. | | |
| <i>Sand (other than silica sand)</i> | | | | | | | | | | | |
| <i>Industrial Sands</i> | | | | | | | | | | | |
| Natural-bonded molding sand..... | Commercial... | 8 | 118,163 | \$211,254 | \$1.79 | 10 | 118,365 | \$ 255,962 | \$2.16 | + 0.2 | |
| Engine sand..... | Commercial... | 11 | 166,333 | 86,958 | .52 | 13 | 147,149 | 100,925 | .69 | - 11.5 | |
| Total..... | Commercial... | 19 | 284,496 | 298,212 | 1.05 | 23 | 265,514 | 356,887 | 1.34 | - 6.7 | |
| <i>Construction Sands</i> | | | | | | | | | | | |
| Structural sands ^c | Commercial... | 57 | 2,809,908 | 1,511,851 | .53 | 15 | 2,835,383 | 1,806,589 | .64 | + 0.9 | |
| Structural sand ^e | Gov.-contr..... | — | — | — | — | 2 | 370 | 326 | .88 | — | |
| Paving and highway-structures sand... | Commercial... | 40 | 1,272,880 | 793,787 | .62 | 36 | 949,589 | 646,091 | .68 | - 25.4 | |
| Paving and highway-structures sand... | Gov.-contr..... | 5 | 50,850 | 27,500 | .54 | 4 | 52,539 | 51,900 | .99 | + 3.3 | |
| Railroad-ballast sand..... | Commercial... | 7 | 163,384 | 57,683 | .35 | 4 | 244,723 | 103,876 | .42 | + 49.8 | |
| Other construction sands..... | Commercial... | 11 | 249,086 | 162,515 | .65 | 11 | 188,798 | 145,127 | .77 | - 24.2 | |
| Total..... | Both..... | 78 | 4,546,108 | 2,553,336 | .56 | 73 | 4,271,402 | 2,753,909 | .64 | - 6.0 | |
| Total sand (other than silica sand)..... | Commercial... | 82 | 4,779,754 | 2,824,048 | .59 | 77 | 4,484,007 | 3,058,570 | .68 | - 6.2 | |
| Total sand (other than silica sand)..... | Gov.-contr..... | 5 | 50,850 | 27,500 | .54 | 6 | 52,909 | 52,226 | .99 | + 3.3 | |
| Total sand (other than silica sand)..... | Both..... | 87 | 4,830,604 | 2,851,548 | .59 | 83 | 4,536,916 | 3,110,796 | .69 | - 6.1 | |
| <i>Gravel</i> | | | | | | | | | | | |
| Structural gravel ^c | Commercial... | 67 | 3,240,357 | 2,002,301 | .62 | 63 | 2,823,525 | 1,788,385 | .67 | - 12.9 | |
| Structural gravel ^e | Gov.-contr..... | 1 | 12,612 | 5,654 | .45 | 4 | 55,385 | 18,308 | .34 | + 339.1 | |
| Paving and highway-structures gravel... | Commercial... | 85 | 3,919,993 | 2,146,739 | .55 | 88 | 3,495,340 | 2,088,244 | .60 | - 10.8 | |
| Paving and highway-structures gravel... | Gov.-contr..... | 42 | 1,878,834 | 1,166,792 | .62 | 34 | 776,863 | 464,777 | .60 | - 58.6 | |
| Railroad-ballast gravel..... | Commercial... | 17 | 1,061,038 | 419,721 | .40 | 13 | 1,184,994 | 503,260 | .42 | + 11.7 | |
| Other gravel..... | Commercial... | 14 | 146,835 | 68,550 | .47 | 13 | 99,412 | 54,993 | .55 | - 32.3 | |
| Total..... | Both..... | 159 | 10,259,669 | 5,809,757 | .57 | 156 | 8,435,519 | 4,917,967 | .58 | - 17.8 | |
| Total gravel..... | Commercial... | 117 | 8,368,223 | 4,637,311 | .55 | 119 | 7,603,271 | 4,434,882 | .58 | - 9.1 | |
| Total gravel..... | Gov.-contr..... | 42 | 1,891,446 | 1,172,446 | .62 | 37 | 832,248 | 483,085 | .58 | - 56.0 | |

| Total gravel..... | 159 | 10,259,669 | 5,809,757 | .57 | 156 | 8,435,519 | 4,917,967 | .58 | - 17.8 |
|--------------------------------------------------------------------|-----|------------|--------------|--------|-----|------------|--------------|--------|--------|
| Total sand (other than silica sand) and gravel..... | | | | | | | | | |
| Commercial..... | 134 | 13,147,977 | 7,461,359 | .57 | 136 | 12,087,278 | 7,493,452 | .62 | - 8.1 |
| Total sand (other than silica sand) and gravel..... | | | | | | | | | |
| Gov.-contr..... | 44 | 1,942,296 | 1,199,946 | .62 | 40 | 885,157 | 535,311 | .60 | - 54.4 |
| Total sand (other than silica sand) and gravel..... | | | | | | | | | |
| Both..... | 178 | 15,090,273 | 8,661,305 | .57 | 176 | 12,972,435 | 8,028,763 | .62 | - 14.0 |
| Summary—Sand (including silica sand) and gravel (Tables 48 and 49) | | | | | | | | | |
| Total industrial sands (including silica sand)..... | | | | | | | | | |
| Total construction sands and gravel..... | | | | | | | | | |
| Both..... | 32 | 2,540,999 | 3,705,759 | 1.46 | 37 | 2,799,287 | 4,708,130 | 1.66 | + 10.2 |
| Both..... | 169 | 14,805,777 | 8,363,093 | .57 | 166 | 12,706,921 | 7,671,876 | .60 | - 14.2 |
| Total sand (including silica sand) and gravel..... | | | | | | | | | |
| (Tables 48 and 49) | | | | | | | | | |
| Both..... | 191 | 17,346,776 | \$12,068,852 | \$0.70 | 190 | 15,506,208 | \$12,380,006 | \$0.80 | - 10.6 |

* Revised figures.

* Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

b Number of plants reporting production.

c Excludes highway structures.

SILICA AND TRIPOLI

GROUND SILICA

Ground silica or silica flour is made by fine grinding of washed silica sand. During 1947 the quantity of this mineral material sold or used by producers in Illinois amounted to 189,250 tons and was valued at the plants at \$1,457,600, as shown in table 50. This was an increase of 37.1 percent in amount and 45.4 percent in value, or 43 cents per ton, over the previous year. Illinois continued to rank first among the states in the production of ground silica. It is used in the abrasive, foundry, filler, ceramic, and other fields. In the ceramic in-

dustry it is known as "silica flour" or "potter's flint."

TRIPOLI ("AMORPHOUS" SILICA)

The amount of tripoli ("amorphous" silica) sold or used by producers in Illinois in 1947 totaled 14,700 tons, valued at the plants at \$314,100, as given in table 51. This is a decrease of 6 percent in amount and 2.3 percent in value from the previous year, and reflected an average increase of 81 cents per ton over 1946. Illinois ranked first among the states in the production of tripoli. It is used as an abrasive, polish, filler, and for many other purposes.

TABLE 50.—GROUND SILICA SOLD OR USED BY PRODUCERS IN ILLINOIS, 1946-1947^a

| Use | 1946 | | | 1947 | | | |
|----------------------------------|-------------|-----------------|--------|-------------|-----------------|--------|------------------------------------|
| | Amount tons | Value at plants | | Amount tons | Value at plants | | Percent change in amount from 1946 |
| | | Total | Av. | | Total | Av. | |
| Abrasive..... | 45,036 | \$ 304,152 | \$6.75 | 75,485 | \$ 607,433 | \$8.04 | + 67.6 |
| Enamel and glass..... | 10,029 | 74,944 | 7.47 | 13,380 | 78,801 | 5.89 | + 33.4 |
| Foundry and filler..... | 27,377 | 187,627 | 6.85 | 49,831 | 384,834 | 7.72 | + 82.0 |
| Pottery, porcelain, and tile.... | 19,166 | 148,615 | 7.75 | 35,378 | 274,374 | 7.76 | + 84.6 |
| Other uses and undistributed.. | 36,415 | 287,498 | 7.90 | 15,182 | 112,189 | 7.39 | - 58.3 |
| Total..... | 138,023 | \$1,002,836 | \$7.27 | 189,256 | \$1,457,631 | \$7.70 | * + 37.1 |

^a Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

TABLE 51.—TRIPOLI ("AMORPHOUS" SILICA) SOLD OR USED BY PRODUCERS IN ILLINOIS, 1943-1947^a

| Year | Amount tons | Value at plants | | Percent change in amount from previous year |
|---------|-------------|-----------------|---------|---------------------------------------------|
| | | Total | Av. | |
| 1943... | 10,023 | \$168,758 | \$16.54 | -18.9 |
| 1944... | 12,031 | 205,732 | 17.02 | +17.9 |
| 1945... | 11,144 | 184,189 | 16.53 | - 7.4 |
| 1946... | *15,631 | *321,600 | 20.57 | +40.3 |
| 1947... | 14,687 | 314,075 | 21.38 | - 6.0 |

* Revised figures.
^a Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

FLUORSPAR

PRODUCTION

Peacetime records were established in 1947 by fluorspar production, shipments, and consumption, according to data published by the U. S. Bureau of Mines. Production and shipments had been surpassed only by the wartime years of 1942, 1943 and 1944, and consumption only by that in 1942 and 1943.

Production, which had dropped from 325,200 net tons in 1945 to 277,300 tons in 1946, reached a total of 342,882 tons in 1947. This is still somewhat below the wartime production in 1942 and 1943 when more than 400,000 tons were produced.

Likewise shipments, which had dropped to 277,940 tons in 1946, reached a total of 328,510 tons in 1947. This was approximately 5,000 tons above the 1945 total of 323,961 tons. Tables 52 and 53 show the division of shipments from mines by states and by grades and industries respectively.

Illinois again maintained its rank as largest producer of fluorspar, supplying 51 percent of the national total. The Illinois-Kentucky area together produced 78 percent of the domestic production. Shipments from mines in Illinois and Kentucky were 18 percent greater than in 1946, as compared

with an increase of 20 percent from other states.

Shipments by river or by river-rail were 60,630 tons in 1947 as compared with 51,428 tons in 1946.

STOCKS

Stocks of fluorspar at the mines on December 31, 1947, totaled 91,433 tons. This amount included 33,101 tons of finished fluorspar and 58,332 tons of crude fluorspar (calculated to be equivalent to approximately 29,000 tons of finished fluorspar), making a total equivalent of about 62,000 tons finished fluorspar.

Stocks at consumers' plants on December 31, 1947, (table 54) amounted to 114,150 tons which was an increase of 9 percent over the total of 98,663 tons on hand at the close of 1946.

IMPORTS

Imports of fluorspar in 1947 rose sharply from the 1946 total of 29,852 net tons. The 1947 imports of 78,379 tons were still somewhat under the 1945 figure of 103,133 tons. Mexico, as for the past several years, furnished a large percentage of the imports; Newfoundland and Spain furnished the only other imports of sizable quantities.

TABLE 52.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES, BY STATES, 1946-1947^a

| State | 1946 | | | 1947 | | |
|-----------------|----------|-------------|---------|----------|--------------|---------|
| | Net tons | Value | | Net tons | Value | |
| | | Total | Av. | | Total | Av. |
| Colorado..... | 32,539 | \$ 925,867 | \$28.45 | 32,153 | \$ 950,882 | \$29.57 |
| Illinois..... | 154,525 | 5,493,642 | 35.55 | 167,157 | 6,148,654 | 36.78 |
| Kentucky..... | 63,143 | 1,889,454 | 29.92 | 90,256 | 2,713,508 | 30.06 |
| New Mexico..... | 17,584 | 489,607 | 27.84 | 27,526 | 841,095 | 30.56 |
| Arizona..... | 389 | 7,959 | 20.46 | 1,601 | | |
| Nevada..... | 6,234 | | | 8,042 | | |
| Texas..... | 1,118 | 232,440 | 23.82 | 1,019 | 300,736 | 24.27 |
| Utah..... | 2,370 | | | 1,730 | | |
| Washington..... | 38 | | | — | | |
| Total..... | 277,940 | \$9,038,969 | \$32.52 | 329,484 | \$10,954,875 | \$33.25 |

^a Source: U. S. Bureau of Mines.

TABLE 53.—FLUORSPAR SHIPPED FROM MINES IN THE UNITED STATES, BY GRADES AND INDUSTRIES, 1946-1947^a
(In net tons)

| Grade and industry | 1946 | 1947 | Grade and industry | 1946 | 1947 |
|------------------------------------|-------------------------|-------------------------|----------------------------|---------|---------|
| Fluxing gravel and foundry lump: | | | Acid lump: | | |
| Ferrous..... | ^b 134,822 | ^b 165,281 | Ferrous..... | 15 | — |
| Nonferrous..... | 1,410 | 1,734 | Nonferrous..... | 2 | 1 |
| Cement..... | 661 | 812 | Hydrofluoric acid..... | 267 | — |
| Miscellaneous..... | 175 | 3,489 | Total..... | 284 | 1 |
| Government stock pile..... | 3,907 | 9,109 | Total: | | |
| Total..... | ^b 140,975 | 180,425 | Ferrous..... | 140,776 | 171,862 |
| Ground and flotation concentrates: | | | Nonferrous..... | 3,643 | 2,518 |
| Ferrous..... | ^{b, c} 5,939 | ^{b, c} 6,581 | Cement..... | 661 | 812 |
| Nonferrous..... | 2,231 | 783 | Glass and enamel..... | 47,377 | 49,559 |
| Glass and enamel..... | 47,377 | 49,559 | Hydrofluoric acid..... | 79,047 | 89,667 |
| Hydrofluoric acid..... | 78,780 | 89,667 | Miscellaneous..... | 800 | 4,777 |
| Miscellaneous..... | 625 | 1,288 | Government stock pile..... | 3,907 | 9,109 |
| Exported..... | 1,729 | 1,180 | Exported..... | 1,729 | 1,180 |
| Total..... | ^{b, c} 136,681 | ^{b, c} 149,058 | Total..... | 277,940 | 329,484 |

^a Source: U. S. Bureau of Mines.

^b Fluxing gravel includes (and flotation concentrates exclude) the following quantities of flotation concentrates blended with fluxing gravel: 1946, 9,129 tons; 1947, 19,110 tons.

^c Includes pelletized gravel.

TABLE 54.—SALIENT STATISTICS OF FINISHED FLUORSPAR IN THE UNITED STATES, 1943-1947^a
(Net tons)

| Date | Production | Shipments from mines ^b | General imports (receipts) | Consumption | Industry stocks at end of period | | |
|---------------------|------------|-----------------------------------|----------------------------|-------------|----------------------------------|----------------|---------|
| | | | | | Consumers' plants | Domestic mines | Total |
| 1943..... | 405,600 | 406,016 | 43,769 | 388,885 | 105,933 | 19,026 | 124,959 |
| 1944..... | 413,700 | 413,781 | 92,499 | 410,170 | 98,446 | 19,021 | 117,467 |
| 1945..... | 325,200 | 323,961 | 100,726 | 356,090 | 103,148 | 19,863 | 123,011 |
| 1946..... | 277,300 | 277,940 | 29,488 | 303,190 | 98,663 | 18,957 | 117,620 |
| 1947: | | | | | | | |
| First quarter..... | 83,959 | 77,849 | 10,764 | 91,856 | 83,048 | 24,818 | 107,866 |
| Second quarter..... | 93,887 | 90,402 | 25,554 | 93,050 | 92,719 | 28,303 | 121,022 |
| Third quarter..... | 81,792 | 82,111 | 19,300 | 88,110 | 107,078 | 27,984 | 135,062 |
| Fourth quarter..... | 83,244 | 78,148 | 22,757 | 98,943 | 113,156 | 33,080 | 146,236 |
| Total..... | 342,882 | 328,510 | 78,375 | 371,959 | — | — | — |

^a Source: U. S. Bureau of Mines.

^b Comprises shipments to domestic and foreign consumers and to Government stock pile.

With a considerable decrease in consumption in 1946 it was not felt necessary to continue importing large amounts of foreign spar. In 1947 we find an apparent reversal of this opinion for several reasons. After the initial slump in consumption, due to the readjustment to peacetime activities,

we find civilian demands by 1947 increasing to the point of surpassing any previous peacetime year. That fact has also made us more cognizant of our rapidly dwindling reserves and the possibility of importing considerable spar without undue competition to our domestic industry.

TABLE 55.—IMPORTED FLUORSPAR DELIVERED TO CONSUMERS IN THE UNITED STATES, BY USES, 1946-1947^a

| Use | 1946 | | | 1947 | | |
|------------------------|------------|--------------------------------------------------------------------------------------|---------|------------|--------------------------------------------------------------------------------------|---------|
| | Short tons | Selling price at tide-water, border, or f.o.b. mill in United States, including duty | | Short tons | Selling price at tide-water, border, or f.o.b. mill in United States, including duty | |
| | | Total | Av. | | Total | Av. |
| Steel..... | 20,319 | \$485,592 | \$23.90 | 64,797 | \$1,665,629 | \$25.71 |
| Hydrofluoric acid..... | 5,143 | 163,659 | 31.82 | 12,346 | 506,497 | 41.03 |
| Ferro-alloys..... | 309 | 10,700 | 34.63 | 229 | 7,900 | 34.50 |
| Glass and enamel..... | 106 | 3,384 | 31.92 | 495 | 21,902 | 44.25 |
| Other..... | 186 | 4,238 | 22.78 | 403 | 13,377 | 33.19 |
| Total..... | 26,063 | \$667,573 | \$25.61 | 78,270 | \$2,215,305 | \$28.30 |

^a Source: U. S. Bureau of Mines.

CONSUMPTION

Consumption of fluorspar in 1947 (table 56) with a total of 376,138 was considerably above the 1946 consumption of 303,190 tons, although it was still considerably short of the all-time high of 410,170 tons in 1944, due to war demands.

Steel continued to be the largest consumer of fluorspar (fig. 17) accounting for 55 percent in 1947, an increase of 2 percent over 1946. The hydrofluoric acid industry, the second largest consumer of fluorspar, used 20 percent more fluorspar in 1947 than in 1946. In spite of this fact the percentage used by this industry dropped

from 28 percent in 1946 to 27 percent in 1947. Glass and enamel industries established an all-time high in 1947 by using approximately 7 percent of the total fluorspar consumed. They consumed a total of 49,559 tons in 1947 as compared with 47,377 tons in 1946.

Although consumption of fluorspar was reported in 39 states and the District of Columbia in 1947, three states—Illinois, Ohio and Pennsylvania—used 207,466 tons or 55 percent of the total consumption. Pennsylvania ranked first in consumption in steel and glass industries, and Illinois maintained its rank as largest consumer of fluorspar in hydrofluoric acid.

TABLE 56.—CONSUMPTION OF FLUORSPAR (DOMESTIC AND FOREIGN) IN THE UNITED STATES, BY INDUSTRIES, 1943-1947^a
(In net tons)

| Date | Steel | Hydro-fluoric acid | Glass | Enamel | All other | Total |
|-----------|---------|--------------------|--------|--------|-----------|---------|
| 1943..... | 234,148 | 113,614 | 20,592 | 1,726 | 18,805 | 388,885 |
| 1944..... | 230,201 | 129,553 | 27,315 | 2,547 | 20,554 | 410,170 |
| 1945..... | 197,916 | 109,315 | 31,874 | 3,695 | 13,290 | 356,090 |
| 1946..... | 160,735 | 83,901 | 39,852 | 6,739 | 11,963 | 303,190 |
| 1947..... | 209,395 | 100,363 | 42,130 | 8,938 | 15,312 | 376,138 |

^a Source: U. S. Bureau of Mines.

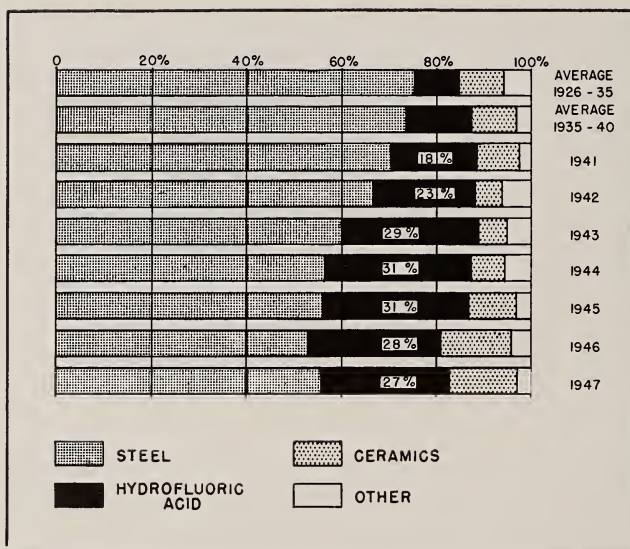


FIG. 17.—Percentage consumption of fluorspar (domestic and foreign) by industries, 1926-1947.

FLUORSPAR IN ILLINOIS

Illinois in 1947 maintained her supremacy as largest producer of fluorspar with production amounting to 51 percent of the national total. This was a percentage drop from 56 in 1946 although the production was considerably greater. Shipments from mines increased from 154,525 tons in 1946 to 167,157 in 1947.

The total dollar value of fluorspar produced in Illinois increased from \$5,493,642 in 1946 to \$6,148,654 in 1947. The average price per ton increased from \$35.55 in 1946 to \$36.78 in 1947. This may be compared with the national average of \$32.52 per ton in 1946 and \$33.25 in 1947 (figure 18).

Steel was again the largest consumer of Illinois fluorspar; 72,389 tons or 43.6 percent of the total went into steel production in Illinois. This is the same percentage as in 1946 although the tonnage was greater in 1947.

Illinois consumed more fluorspar in hydrofluoric acid than any other state and the increase in consumption in the ceramic industries in 1946 continued through 1947.

PRICES

Fluorspar, f.o.b. mines, bulk, Kentucky and Illinois¹, sold at the following prices: 70 percent, all rail movement, ton \$33.00; acid 97.5 and 1 percent, bulk, ton \$37.00.

¹Engineering and Mining Journal, Vol. 148, No. 7, July, 1947.

TABLE 57.—FLUORSPAR PRICES, DECEMBER 15, 1947^a

| | Price per ton |
|----------------------------------------------------------------------------------|------------------|
| Fluorspar, No. 1 ground, 95-98% CaF_2 , bulk, carload lot mines..... | \$37.00 |
| Washed gravel, 70% or more CaF_2 , bulk, carload lot mines..... | 33.00 |
| 65%, bulk, carload lot mines..... | 32.00 |
| 60%, bulk, carload lot mines..... | 31.00 |
| Less than 60%, bulk, carload lot mines. | 30.00 |

^a Source: Oil, Paint and Drug Reporter, December 29, 1947.

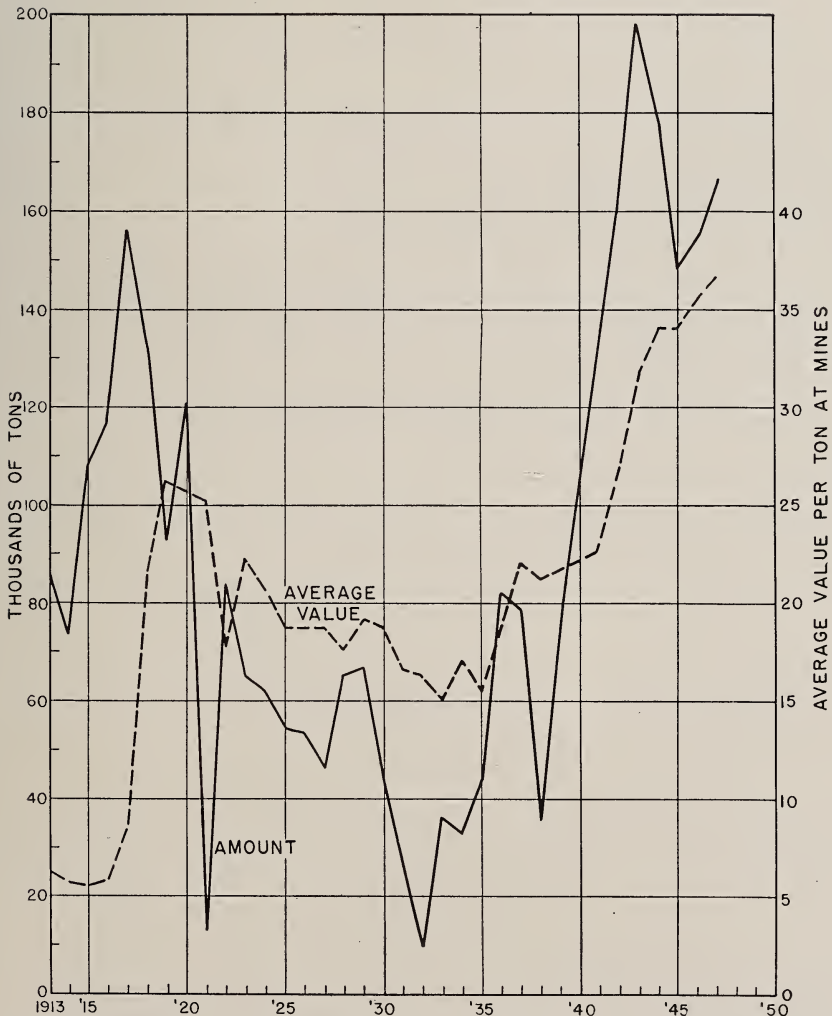


FIG. 13.—Fluorspar, annual shipments and average value, from Illinois mines, 1913-1947.

ZINC, LEAD, AND SILVER

In 1947 production of metallic ores in Illinois established again an all-time high record in value, when zinc, lead, and silver, recovered from ores mined in the State, were valued at \$3,028,600 as determined by the U. S. Bureau of Mines. This was an increase of 1.3 percent over 1946, the largest previous annual total. Data for 1946 and 1947 are given in table 64. The annual value of metals recovered from ores mined in Illinois, 1913-1947, is shown graphically in figure 19.

ZINC

The consumption of slab zinc in the United States has increased sevenfold since 1900, according to the United States Bureau of Mines. The use of this versatile metal has grown at more than twice the rate of industrial production.

The study of the consumption of slab zinc covers four major categories—galvanizing, brass products, rolled zinc, and zinc-base alloys—with minor applications grouped under the headings zinc oxide and other uses. The accompanying tables summarize the basic data related to the several divisions of use for the period 1940-1945.

During the six year period 1940-1945, slab zinc was reported consumed in 42 states and the District of Columbia, Illinois ranking first with an annual average of 123,677 short tons and Delaware and

North Carolina tying for last place with a 1-ton average. The states of Illinois, Indiana, Michigan, Ohio, and Wisconsin ranked first as a geographic area with an annual average total of 368,176 tons. Nearly half of the average annual total slab zinc consumed in the United States was accounted for in this division.

In regard to the mine production of zinc in the United States, the Bureau of Mines reports that the absence of labor strikes in 1947, an improved mine and mill labor supply, and the highest annual price for prime Western grade zinc since 1917, combined to boost mine production of recoverable zinc in the United States 9 percent over the 1946 output. In 1947 the total domestic mine production of recoverable zinc (including that recovered as zinc pigments and salts directly from ore) was 624,809 short tons, compared with 574,833 tons in 1946.

Mine production of zinc in the Central States (comprising in order of output, Oklahoma, Kansas, Missouri, Wisconsin, Illinois, Kentucky, and Arkansas) decreased 19 percent in 1947 from 1946 and was the lowest since 1932.

Mines in Illinois produced 9,816 tons of recoverable zinc in 1947 compared with 8,798 tons in 1946. The northern Illinois area alone produced 4,509 tons of zinc in 1947. The Tri-State Zinc, Incorporated, in northern Illinois, the Ozark-Mahoning

TABLE 58.—CONSUMPTION, PRODUCTION, IMPORTS, AND EXPORTS OF SLAB ZINC IN THE UNITED STATES, 1940-1945^a
(In tons)

| Year | Consumption ^b | Production | Imports | Exports |
|-----------|--------------------------|------------|---------|---------|
| 1940..... | 733,057 | 724,192 | 16,468 | 79,091 |
| 1941..... | 827,435 | 881,523 | 34,554 | 89,309 |
| 1942..... | 728,169 | 945,067 | 36,352 | 133,938 |
| 1943..... | 816,777 | 990,524 | 56,155 | 97,439 |
| 1944..... | 881,644 | 918,339 | 63,626 | 21,576 |
| 1945..... | 847,200 | 813,803 | 97,116 | 7,782 |
| 1946..... | 797,330 | 772,778 | 104,743 | 37,431 |
| 1947* | 777,781 | 862,200 | 72,326 | 106,667 |

* Preliminary figures.

^a Source: U. S. Bureau of Mines.

^b Does not include remelt spelter.

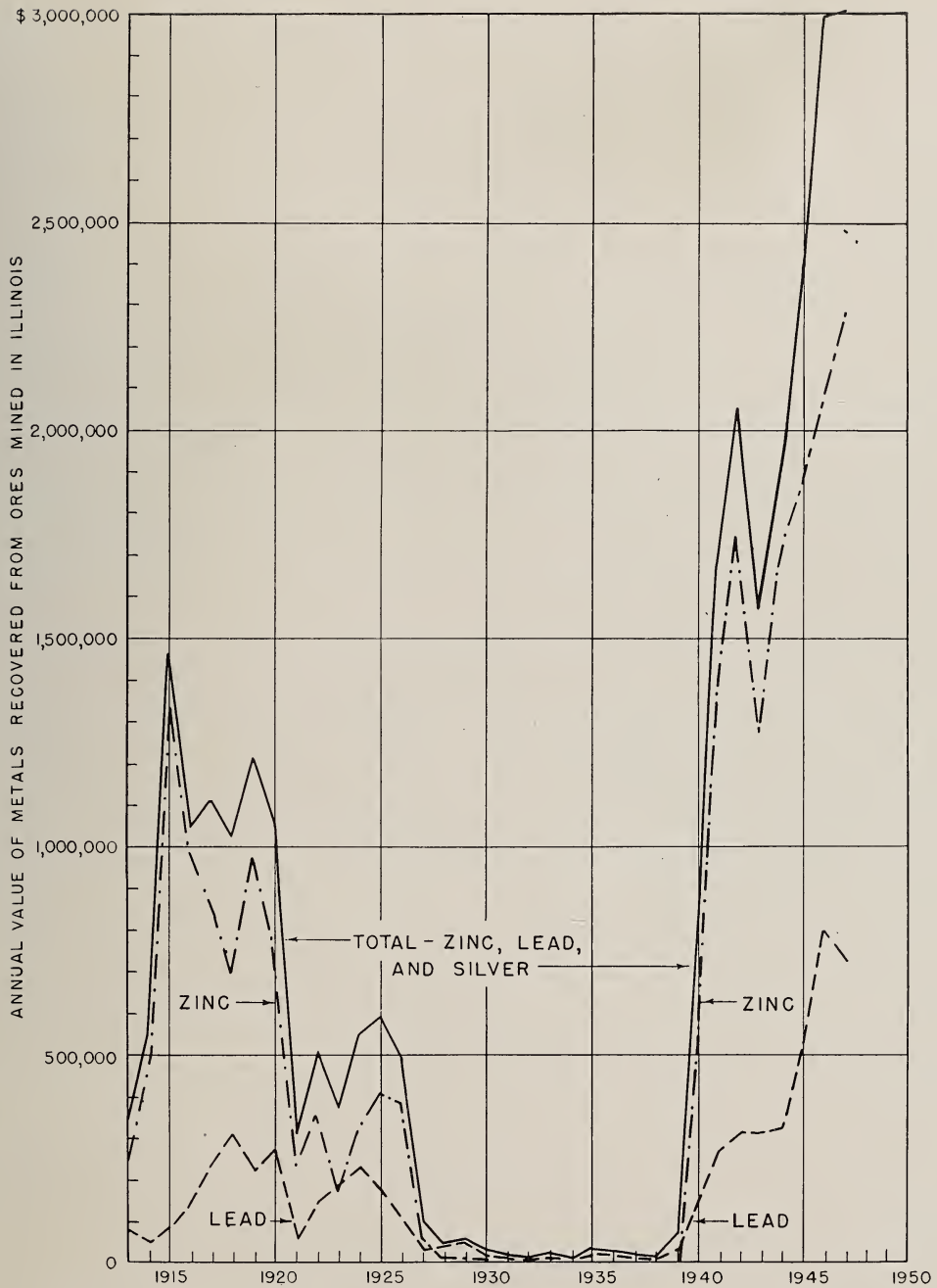


FIG. 19.—Annual value of metals recovered from ores mined in Illinois, 1913-1947.

TABLE 59.—SLAB ZINC CONSUMPTION IN STATES OF EAST NORTH CENTRAL REGION, 1940-1945^a
(In tons)

| East North Central States | 1940 | Rank ^b | 1941 | Rank ^b | 1942 | Rank ^b | 1943 | Rank ^b | 1944 | Rank ^b | 1945 | Rank ^b | Average annual consumption 1940-1945 | Rank ^b |
|---------------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------------------------------|-------------------|
| Illinois..... | 110,987..... | 1 | 130,849..... | 1 | 108,753..... | 2 | 105,724..... | 2 | 140,758..... | 1 | 144,989..... | 1 | 123,677..... | 1 |
| Indiana..... | 60,866..... | 5 | 60,077..... | 5 | 57,446..... | 5 | 55,616..... | 5 | 73,330..... | 5 | 72,905..... | 5 | 63,373..... | 5 |
| Michigan..... | 48,799..... | 7 | 59,863..... | 6 | 51,110..... | 6 | 43,367..... | 8 | 46,596..... | 6 | 42,216..... | 7 | 48,659..... | 6 |
| Ohio..... | 107,862..... | 3 | 113,082..... | 3 | 73,031..... | 4 | 103,945..... | 4 | 113,833..... | 4 | 119,051..... | 3 | 105,134..... | 4 |
| Wisconsin..... | 12,819..... | 13 | 21,408..... | 10 | 17,479..... | 11 | 49,644..... | 6 | 37,734..... | 8 | 24,910..... | 9 | 27,333..... | 8 |
| Total ^c | 341,333..... | 1 | 385,279..... | 1 | 307,819..... | 1 | 358,296..... | 1 | 412,251..... | 1 | 404,071..... | 1 | 368,176..... | 1 |

^a Source: U. S. Bureau of Mines.^b Rank among states of United States.^c Regional rank.

TABLE 60.—PRIMARY SLAB ZINC PRODUCED IN THE UNITED STATES, BY STATES WHERE SMELTED 1945-1946^{a, b}
(In tons)

| State | 1945 | 1946 |
|---------------------------------|----------------------|----------------------|
| Arkansas..... | 29,391 | 18,729 |
| Idaho..... | ^c 33,110 | ^c 34,832 |
| Illinois..... | ^d 124,904 | ^d 104,002 |
| Montana..... | ^e 179,251 | ^e 186,662 |
| Oklahoma..... | 106,115 | 104,125 |
| Pennsylvania..... | 200,709 | 178,811 |
| Other states ^e | ^f 91,081 | ^f 101,110 |
| Primary total..... | 764,561 | 728,262 |
| Redistilled secondary..... | 49,242 | 44,516 |
| Total..... | 813,803 | 772,778 |

^a Source: U. S. Bureau of Mines.

^b Final-stage production; includes high-grade zinc refined from lower grades, but excludes lower grades consumed for this purpose.

^c Produced by electrolytic process only.

^d Produced by electrolytic and retort processes.

^e Texas and West Virginia.

^f Includes electrolytic zinc produced in Texas.

TABLE 61.—PRICE OF SLAB ZINC, PRIME WESTERN GRADE, EAST ST. LOUIS, ILLINOIS, 1940-1947^a
(Cents per pound)

| Year | Price (cents) |
|-------------------------|---------------|
| 1940..... | 6.34 |
| 1941..... | 7.48 |
| 1942 ^b | 8.25 |
| 1943 ^b | 8.25 |
| 1944 ^b | 8.25 |
| 1945 ^b | 8.25 |
| 1946..... | 10.50 |
| Jan. 1-July 3..... | 8.25 |
| July 3-July 25..... | 9.50 |
| July 25-Oct. 14..... | 8.25 |
| Oct. 14-Nov. 12..... | 9.25 |
| Nov. 12-Dec. 31..... | 10.50 |
| 1947..... | 10.50 |

^a Source: U. S. Bureau of Mines.

^b Price for 1942-45 is ceiling established by Office of Price Administration.

Company, and the Minerva Oil Company in southern Illinois, continued to operate during 1947.

The Tri-State (or Joplin) region of northeastern Oklahoma, southeastern Kansas, and southwestern Missouri produced 108,550 tons of zinc, 82 percent of the Central States total zinc and 17 percent of the United States total zinc output in 1947. After the premium price plan expired June 30, 1947, more than half the district mines and all but two of the tailing mills shut down, and many of them remained idle or operated for a short time only the rest of the year.

In summary, domestic zinc smelters established a peacetime record for the production of slab zinc in 1947, according to the Bureau of Mines. Output from domestic and foreign ores increased 12 percent and 9 percent respectively over that of 1946, and the production of redistilled slab zinc rose 26 percent to reach the highest level since 1941. Domestic mine output of recoverable zinc also increased in 1947; Idaho continued to be the largest producing state in the United States. A 9 percent gain in imports of zinc in ores and

concentrates was more than offset by a 31 percent drop in slab zinc imports. Exports of slab zinc were nearly three times greater than in 1946. Despite the increase in smelter output, the total produced plus net imports was insufficient to balance consumption with the result that producers' and consumers' stocks were sharply reduced during the year. Galvanizing continued to be the principal use of slab zinc, followed by zinc-base alloys and brass products. Prime Western grade slab zinc was quoted at 10.50 cents per pound, f.o.b., East St. Louis, throughout the year.

LEAD

Total lead output from mines in the Central States decreased 5 percent in 1947. Although the principal straight lead mines operated throughout the year, the rate of ore extraction was generally lower than in 1946 and much development work was necessary to replenish ore reserves drawn upon during the war. The quantity of lead produced by zinc-lead mines did not decrease materially. The principal factors affecting mine output of lead and zinc in

TABLE 62.—MINE PRODUCTION OF RECOVERABLE LEAD IN THE UNITED STATES, BY REGIONS AND SOME STATES, 1947^a
(In tons)

| Region and state | Production |
|-----------------------------|------------|
| Eastern States..... | 5,040 |
| Central States..... | 156,600 |
| Western States | |
| Arizona..... | 27,500 |
| California..... | 10,190 |
| Colorado..... | 18,160 |
| Idaho..... | 75,750 |
| Montana..... | 15,500 |
| Nevada..... | 7,330 |
| New Mexico..... | 6,108 |
| Oregon..... | 11 |
| South Dakota..... | 12 |
| Texas..... | 102 |
| Utah..... | 48,100 |
| Washington..... | 4,600 |
| Total (Western States)..... | 213,363 |
| Alaska..... | 264 |
| Total (United States)..... | 375,267 |

^a Source: U. S. Bureau of Mines.TABLE 63.—MINE PRODUCTION OF LEAD IN THE CENTRAL STATES, BY STATES, 1947, AND TOTAL FOR 1946^a
(Tons of recovered metal)

| State | Tons | Value |
|-----------------------------------------|-----------|--------------|
| Arkansas..... | 12 | \$ 3,504 |
| Illinois..... | 2,500 | 730,000 |
| Kansas..... | 7,300 | 2,131,600 |
| Kentucky..... | 180 | 52,560 |
| Missouri..... | 131,000 | 38,281,200 |
| Oklahoma..... | 14,300 | 4,175,600 |
| Wisconsin..... | 1,208 | 352,736 |
| Total (1947)..... | \$156,600 | \$45,727,200 |
| Total (1946)..... | 164,804 | 35,927,272 |
| 1947 increase or decrease..... | -8,204 | +9,799,928 |
| Percent of 1947 increase or decrease... | - 5% | +27% |

^a Source: U. S. Bureau of Mines.

1947 were the retrenchment in zinc mining that followed expiration of the premium price plan and the stimulus to lead mining and exploration afforded by the record high annual average price of lead.

The Illinois output of recoverable lead

was 2,500 tons in 1947 and 3,865 tons in 1946. The northern Illinois area produced 642 tons of lead in 1947.

In 1947 the total mine production of lead in the United States was 375,267 tons, an increase of 12 percent over 1946.

TABLE 64.—ZINC, LEAD, AND SILVER RECOVERED FROM ORES MINED IN ILLINOIS, 1946-1947^a

| Metal | Unit | 1946* | | | 1947 | | | |
|-----------------|-----------|--------|--------------------|----------|--------|--------------------|----------|------------------------------------|
| | | Amount | Value ^b | | Amount | Value ^b | | Percent change in amount from 1946 |
| | | | Total | Av. | | Total | Av. | |
| Zinc. | Tons | 8,798 | \$2,146,712 | \$244.00 | 9,816 | \$2,296,944 | \$234.00 | +11.6 |
| Lead. | " | 3,865 | 842,570 | 218.00 | 2,500 | 730,000 | 292.00 | —35.3 |
| Silver. | Troy ozs. | 2,302 | 1,860 | 0.808 | 1,800 | 1,629 | 0.905 | —21.8 |
| Total. | — | — | \$2,991,142 | — | — | \$3,028,573 | — | ^e + 2.3 |

^{*} Revised figures.^b Source: U. S. Bureau of Mines.^b Value for zinc and lead based on yearly average price received by producers, including bonus payments by Metals Reserve Co. for overquota production, as determined by U. S. Bureau of Mines.

Value for silver based on U. S. Treasury buying price for newly mined silver.

^c Percent change in value from 1946.

MISCELLANEOUS MINERALS

Included in this group are several mineral materials produced in Illinois by less than three producers for each material, so that details of production cannot be published without revealing individual operations.

Peat is produced in northern Mason County for mixed fertilizer and other purposes.

Pyrites (coal brasses) are produced in Henry County from coal-cleaning operations.

Sulfur, as elemental sulfur, is recovered as a byproduct in the liquid purification of gas.

The annual total amount and value of these mineral materials, which were sold or used by producers in Illinois for 1943-

TABLE 65.—MISCELLANEOUS MINERALS,^a SOLD OR USED BY PRODUCERS IN ILLINOIS, 1943-1947^b

| Year | Amount tons | Value at plants | |
|-----------|----------------|-----------------|--------|
| | | Total | Av. |
| 1943..... | 28,199 | \$117,895 | \$4.37 |
| 1944..... | 19,192 | 84,856 | 4.43 |
| 1945..... | 17,846 | 83,814 | 4.70 |
| 1946..... | *11,209 | *67,691 | *6.04 |
| 1947..... | 9,357 | 79,535 | 8.50 |

* Revised figures.

^a Minerals included: peat, pyrites, and sulfur from manufactured gas.

^b Summary of joint canvass made by Illinois Geological Survey and U. S. Bureau of Mines.

1947, are given in table 65. The total for 1947 amounted to 9,350 tons, valued at the plants at \$79,500.

MINERALS PROCESSED, BUT MOSTLY NOT MINED, IN ILLINOIS

Included in this group are mineral materials which are processed in Illinois, but mostly are mined in other states. The amount and value of these materials, sold or used by processors in Illinois for 1945—1947, are given in table 66, as far as the data are available.

Coke and byproducts produced in Illinois are made in the byproduct ovens, most of it from coal mined in the eastern bituminous fields. Coke produced from Illinois coal is not differentiated from the other, so table 66 gives the entire amount of coke made in Illinois. Details of coke products are given in this report in table 20, page 42.

Pig iron, a basic product in the steel industry, is produced in Illinois from iron

ore mined in the Lake Superior district and shipped in by water.

Sulfuric acid is a material produced in Illinois as a byproduct of the smelting of zinc ores and is also produced from sulfur at zinc plants.

Slab zinc, a basic product in the zinc industry, is produced in Illinois from ores mined in Illinois and from ores mined in other states. Zinc recovered from Illinois ores is included in table 64. That recovered from out-of-state ores is included in "Total minerals processed" in table 66.

Ground feldspar is made in Illinois from crude feldspar which is mined in South Dakota. It is used in the manufacture of whiteware and enamels and for other purposes. Data cannot be published on feld-

TABLE 66.—MINERALS PROCESSED BUT MOSTLY NOT MINED IN

| Kind | Unit | 1945 | | |
|---------------------------------------------------------------|------|-----------|-----------------|---------|
| | | Amount | Value at plants | |
| | | | Total | Av. |
| Coke and byproducts ^b | — | — | \$ 44,642,444 | — |
| Packaged fuel..... | Tons | 16,690 | 186,593 | \$11.20 |
| Pig iron..... | " | 5,061,368 | 116,303,897 | 22.98 |
| Sulfuric acid ^e | " | 216,482 | 2,186,468 | 10.10 |
| Slab zinc ^f | | | | |
| From Illinois ore ^g | " | 8,310 | 1,911,300 | 230.00 |
| From out-of-state ore..... | " | 116,669 | 26,833,850 | 230.00 |
| Total zinc smelted in Illinois..... | " | 124,979 | 28,745,150 | 230.00 |
| Miscellaneous minerals processed ^h | — | — | 3,505,218 | — |
| Total minerals processed, but mostly not mined in Illinois... | — | — | \$193,658,470 | — |

spar grinding in Illinois without revealing individual operations, but are included in "Miscellaneous minerals processed," table 66.

Magnesium compounds are processed in Illinois from out-of-state dolomite. Data on these are included in "Miscellaneous minerals processed," table 66, to avoid revealing individual operations.

Mineral pigments are produced in Illinois from crude mineral earth pigments and iron oxide pigments from various sources. Data on these are included in "Miscellaneous minerals processed," table 66.

Mineral wool is processed in Illinois from materials mined both in Illinois and in other states. The raw materials used are woolrock, limestone, slag, and other rock products. Data on this material are included

in "Miscellaneous minerals processed," table 66.

Pig lead is made in Illinois by smelting lead ores; that obtained from ores mined in Illinois is given in table 64. Data on pig lead produced in Illinois from ores mined in other states are not available.

Expanded vermiculite is produced in Illinois by heat-treating crude vermiculite which is mined in the West. Production figures are not available.

Alumina, phosphates, and other processed mineral materials are produced in Illinois in large amounts, but data for them are not available.

The values of pig lead, expanded vermiculite, alumina, phosphates, and other mineral materials, if known, would greatly increase the total given in table 66.

ILLINOIS, SOLD OR USED BY PRODUCERS IN ILLINOIS, 1945-1947^a

| 1946* | | | 1947 | | | |
|-----------|-----------------|----------|--------|-----------------|----------|------------------------------------|
| Amount | Value at plants | | Amount | Value at plants | | Percent change in amount from 1946 |
| | Total | Av. | | Total | Av. | |
| — | \$ 43,191,213 | — | — | \$61,612,962 | — | +42.7 |
| — | (d) | (d) | 1,454 | 23,814 | \$ 16.38 | — |
| 4,359,719 | 109,717,853 | \$ 25.17 | (d) | (d) | — | — |
| 187,082 | 1,825,920 | 9.76 | (d) | (d) | — | — |
| 8,798 | 2,146,712 | 244.00 | 9,816 | 2,296,944 | 234.00 | +11.6 |
| 95,204 | 23,229,776 | 244.00 | (d) | (d) | — | — |
| 104,002 | 25,376,488 | 244.00 | (d) | (d) | — | — |
| — | 3,728,334 | — | — | 3,895,042 | — | +4.5 |
| — | \$181,693,096 | — | — | \$65,531,818 | — | — |

* Revised figures.

^a Summary of canvass made by U. S. Bureau of Mines.

^b See table 20, "Coke and Byproducts."

^c Percent change in value from 1946.

^d Not available.

^e 60° Baumé - from zinc smelting and sulfur.

^f Value for zinc based on yearly average price received by producers, including bonus payments by Metals Reserve Co. for overquota production, as determined by U. S. Bureau of Mines.

^g Figures for zinc smelted from Illinois ore are not included in "Total minerals processed" in this table, but are included in table 64.

^h Includes ground feldspar, magnesium compounds, metallic abrasives, and mineral wool.

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